Offshore Oil and Marine Protected Areas: Stakeholders, Conflicts and Future Directions in Nova Scotia, Canada

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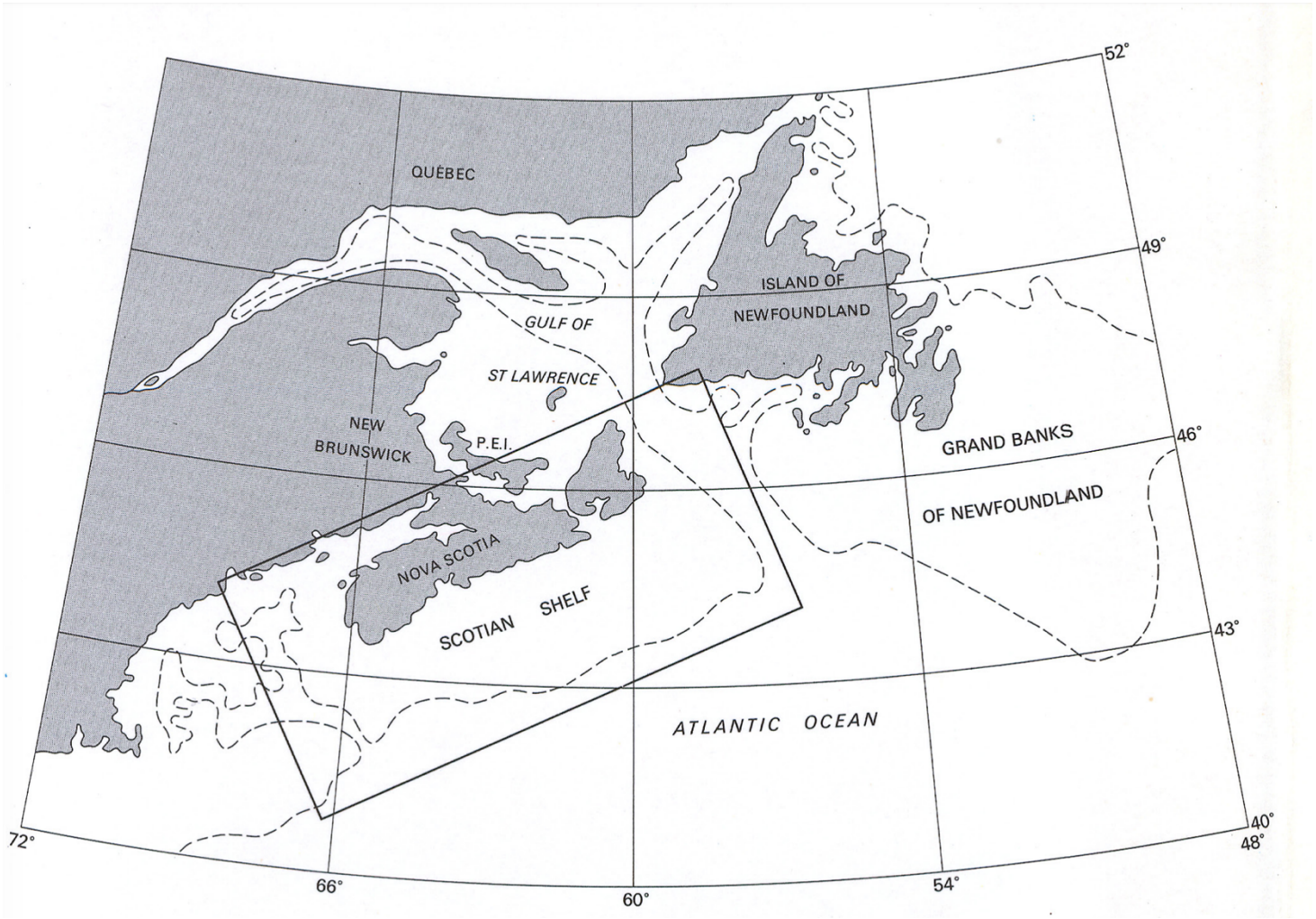
Abstract

Nova Scotia is invested in expanding hydrocarbon exploration offshore to boost its economy. A call for bids is carried out by the Canada-Nova Scotia Offshore Petroleum Board every year to award licenses to operators for exploration through a competitive bidding process. But offshore petroleum expansion competes for space in one of the most productive Atlantic coastal regions. Nova Scotia leads seafood exports in the country (valued at $2 billion) and a growing network of protected areas support an immense diversity of marine life. There is a complex interplay of actors in the region.



Map of the Scotian shelf (King and MacLean, 1974).[1]

[1] King, L. H. & MacLean, B. (1974). *Geology of the Scotian Shelf and Adjacent Areas*. 1:1,000,000. In Marine Sciences Paper Series No. 7 G.S.C. Paper No. 74-31. First edition. Ottawa: Canadian Hydrological Service.

With a view to understand the tensions and trade-offs between marine conservation and development, and associated actors, policies and governance, I focus on the call for bids process. Any future activity in the region depends on this critical decision point. Which marine users, and to what extent, are involved in decision-making? Has the process changed over time? Does conflict arise where call for bids are close to protected areas and fishing grounds? To what extent is conflict mitigated or resolved, and in what ways? What role can marine spatial planning play to achieve sustainable outcomes?

This was a collaborative research project aimed at addressing these questions through a qualitative study involving 25 marine stakeholders. Dr. Fraser and I conducted most of the interviews together in Nova Scotia, Ottawa and online. After discussions with Drs. Fraser and Carter about the analysis, I undertook the N-Vivo analysis and wrote the two articles that are my major paper (in manuscript format for separate journals). Drs. Fraser and Carter provided comments on those drafts. The first paper examines case studies of overlap between conservation and extractive resource development. The second, evaluates the effectiveness of Strategic Environmental Assessments, used to inform licensing decisions and to mitigate conflict in early stages of planning. Both articles address stakeholder difficulties and room for improvement. Marine spatial planning is discussed as a process to appease extractive resource conflicts, but it is still quite early to tell whether it will.

Foreword

My Plan of Study is titled *Planning in Coastal and Marine Environments*. It aims to understand environmental planning (learning component one) in response to the challenges that coastal and marine environments face (learning component two). I became interested in this niche because our oceans are in declining health and face alarming pressures from human activities. Overfishing, intensive aquaculture, marine pollution, irresponsible tourism and accidental oil spills are major biodiversity threats. Two-thirds of the world lives on a coast and millions of livelihoods are intricately tied to the ecosystem services they provide. Resolving challenges at the unique interface of land and sea requires adaptive, integrated and proactive environmental problem-solving.

While many of my peers were interested in urban planning theory and practice, I became curious whether it is possible to achieve a balance among competing economic, social, cultural and environmental uses of coastal and marine ecosystems. In my first semester, I wrote a paper on marine spatial planning in Australia's Great Barrier Reef Marine Park. In the next few months I stumbled on this project and it was situated at the intersection of my learning components with Nova Scotia as a case study—a maritime province with strong cultural and economic ties to the ocean. To understand the case study at a macro-level, I read integrated ocean management and marine conservation policies and familiarized with marine spatial planning in Canada. At a micro-level, I looked into petroleum governance and environmental regulation policies, local news, examined stakeholder consultation records, developed a list of strategic actors and travelled to Nova Scotia and Ottawa to understand their roles and experiences. Two years since I set out to learn what a balance of interests looks like between ocean stakeholders, I have arrived at the conclusion that there is no such thing. In Nova Scotia, at least, extractive industries are pitted against each other, marine conservation is perceived as a threat and stakeholders lack faith in institutions. Lessons can be learned from injustice and exclusion between actors to develop better decision-making processes, but the environment remains the biggest loser.

I strongly believe we need to do better for the ocean and the people who depend on it. My knowledge is limited to a case-study that is only a representation of the scale of challenges that Canada faces as a manager of the largest ocean estate in the world, but my empirical understanding of stakeholder tensions and trade-offs from this case-study through participant interviews, combined with the soft, qualitative skills involved in listening, reading transcripts, coding, analysis, critical thinking and synthesis—have helped me become a better environmental planning and policy professional. All that I have learned through this experience I hope to carry with me into practice.

Acknowledgements

This research was funded by the Social Sciences Research and Humanities Council of Canada. I would like to give thanks to my research supervisor, Dr Gail Fraser, for the opportunity to work on this project. Gail is as brilliant as she is humble. She has great instincts and continues to push the boundaries of offshore oil and conservation research. I could not have written this without her support. Dr Angela Carter, at the University of Waterloo also collaborated on this and I greatly appreciate her knowledge, insight and encouragement. To my advisor, Dr Martin Bunch, thank you for being a mentor and friend. A big thank you to all the participants who took the time to share their stories with us and extend their grace during our visits to Ottawa and Nova Scotia. I am humbled that we crossed paths because we come from very different worlds.

My family—my mom, dad and brother, thank you for all the support and love.

To the ocean—I belong to you, thank you.

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List of Abbreviations

C-NSOPB – Canada-Nova Scotia Offshore Petroleum Board

DFO – Fisheries and Oceans Canada

EA – Environmental Assessment

ECCC – Environment and Climate Change Canada

ENGO – Environmental Non-Governmental Organization

IPCA – Indigenous Protected Conservation Areas

MPA – Marine Protected Area

MSP – Marine Spatial Planning

NL – Newfoundland

NS – Nova Scotia

OECM – Other Effective area-based Conservation Measure

SEA – Strategic Environmental Assessment

VC- Valued Component

Paper 1[2] – Where Offshore Petroleum Licenses and Marine Protected Areas Overlap: actors, conflicts and case studies in Nova Scotia, Canada

By A. Kapoor

Key Words: marine protected areas, offshore petroleum, stakeholder conflicts, marine spatial planning, ocean governance

Abstract

The Government of Nova Scotia is geared to expand its offshore petroleum sector, but Canada is advancing Marine Protected Area networks that place limits on extractive industrial activities. These competing imperatives manifest tensions in offshore Nova Scotia, where petroleum interests overlap with protected areas of different size, shape and protection standards. This paper examines the process of offshore petroleum licensing with a focus on call for bids that spatially overlap with or are adjacent to conservation areas. Three key case studies based on interviews with 25 marine stakeholders (government, fishers, environmental, Indigenous groups) reveal that consultation processes are failing to resolve conflicts, petroleum interests are prioritized over the environment and sector trade-offs need to be better understood. An evolving program of marine spatial planning has the potential to address broader issues at this contentious intersection.

[2] In partial format of the journal of *Extractive Industries and Society* requirements. 8000-word target.

Introduction

The tension between federal commitments to protect marine biodiversity and the provincial drive to extract fossil fuels from marine environments, while also maintaining robust commercial fisheries is a defining characteristic of Atlantic Canada—and one that is set to intensify over the next critical five years. Since Canada surpassed its international commitment to protect 10% of its coastal and marine areas by 2020 (Fisheries and Oceans Canada (DFO), 2019a) a new government mandate was set to conserve 25% of Canada's oceans by 2025, working toward 30% by 2030 (Trudeau, 2019) through the design of Marine Protected Area (MPA) networks.

MPA network planning in Nova Scotia (NS), however, crosses provincial efforts to expand the offshore petroleum sector for the past five decades (Clancy, 2011). NS promotes the offshore as one of the world's "last great undeveloped frontiers" (Hussain, 2016) with 120 trillion cubic feet of natural gas and 8 billion barrels of oil buried deep under the Scotian shelf (Canadian Association of Petroleum Producers (CAPP), n.d.). In 2011–2012 alone the province made close to $286 million in royalties from projects (Department of Energy and Mines, "Economic benefits," n.d.) and giant oil and gas firms are invited to bid on parcels of the ocean floor each year to boost economic growth.

How are the often contradictory goals of expanding marine conversation and intensifying offshore oil and gas activity mitigated or reconciled? More specifically, what consideration is given to MPAs in the regulation and development of offshore oil and gas in this key region, which is set to expand fossil fuel extraction? What trade-offs are occurring, through what interplay of actors, to resolve these conflicts? And what process might be more effective to ensuring both priorities can be met? Answering these questions is critically important at this moment, given the concurrent pressures to implement MPA networks by 2024 and to capitalize on NS's $12 million Offshore Growth Strategy (Grant, 2019; Department of Energy and Mines, 2020).

Here I provide answers by analyzing MPA network planning off the coast of NS, where dominant ocean industries (commercial fishing and offshore oil and gas) are overlaid with a network of protected areas of different sizes, objectives and standards of protection. Given that the identification of marine areas for possible leasing is a critical policy moment (any future offshore oil and gas production hinges on decisions made at this point) I focus on the call for bids process in this region (C-NSOPB, "Call for bids," n.d.).

Using three key case studies, I examine the roles, interests, and concerns of ocean stakeholders where call for bids spatially overlap, or are proximate to, offshore protected areas in NS. These case studies provide fine-grained insights into conflicts between marine stakeholders. One participant said call for bids consultations are "fruitless" and "full of bullshit." Another said, "we all get to speak up, so we think we're

functioning in a democratic way, but the decisions have always been made." Not only do stakeholders feel unheard, inconsistent protected area standards that exclude fishing but allow oil and gas activities have heightened tensions. Federal and provincial governments also appear to be out of sync when it comes to conservation and development.

Ultimately, I find that the dominant approach to marine planning in the region, through single sector consultation processes, such as call for bids and the process to establish MPAs, fail to resolve conflicts between marine protection and economic imperatives associated with fossil fuel extraction. Instead, they result in the prioritization of oil and gas activity and relegation of biodiversity protection to a side consideration, dismissing environmental justice, deepening mistrust and perceived power imbalances. These processes also pay inadequate attention to socio-economic trade-offs between marine users.

In what follows, I provide a global snapshot of this intersection, describe my research methods, and provide context on the coinciding rise and expansion of federal MPA networks alongside provincial offshore oil and gas development, as well as an overview of the interests and role of key actors in these policy decisions (government, fisheries, environmental, and Indigenous). Using three cases studies, I note key obstacles to managing conflicting marine protection and fossil fuel development policy priorities, and end with a discussion on the opportunity for marine spatial planning (MSP) in the region to advance MPA networks and a sustainable blue economy (Bujold et al., 2018).

Global intersections on MPAs and offshore petroleum

In the past decade, the number and size of MPAs designated by nations to curb the declining health of oceans and meet international targets has increased dramatically (De Santo, 2013; Jessen et al., 2017). And while MPAs are a powerful conservation tool (Agardy et al., 2011), a growing body of literature supports the benefits of scaling up from individual MPAs to networks that provide more in terms of biodiversity protection (IUCN-WPCA, 2008; Solandt et al., 2014). An MPA network has representative areas of different sizes and critical habitats or habitat types, strategically spaced to magnify ecological benefits (IUCN-WCPA, 2008).

But fully protected MPAs and networks are often an illusion. Literature on MPA design and management lacks agreement on minimum protection standards. The International Union for the Conservation of Nature (IUCN) propose a range of management categories from "strictly protected areas" that prohibit extractive use, to areas that allow some "sustainable use" (Stolton et al., 2013) but individual countries develop national legal frameworks. This means a country could meet international targets while allowing oil and gas activities, mining and bottom trawling throughout its MPAs—which in reality are

nothing more than “paper parks” with little or no regulation of extractive industries (Jessen et al., 2017, p. 2). Until 2019, the majority of Canada's MPAs allowed extractive uses within their boundaries—including offshore oil and gas (Watson and Hewson, 2018). A comparative study of Canada with the United States and Mexico even noted that Canada was the furthest from achieving its marine protection targets in 2017 with only 0.01% of its ocean estate “fully protected” (Jessen et al., 2017, p. 8). In 2018, Canada legislated minimum protection standards, creating a clearer guide for MPA network planning as Watson and Hewson (2018) recommended.

This predicament is critical in the context of nations searching for new oil and gas fields in deeper waters off continental shelves (Cordes et al., 2016; Pascoe and Innes, 2018; Kark et al., 2015; Venegas- Li et al., 2019). Offshore oil production accounted for about 30% of total oil production in the past decade (US Energy Information Administration, 2016) and is ongoing in deep-water areas in the Arctic, North Atlantic Ocean, South America, Southeast Asia, and Australia and ultra- deep waters (>1000 m) in the Gulf of Mexico (Cordes et al., 2016). These activities pose a number of threats to marine environments. Since Evans (1986) wrote about biophysical impacts of oil and gas exploration in the Scotian shelf, studies have offered new insights and addressed gaps in our understanding of environmental impacts, including noise pollution from seismic surveys and shipping, wastes from drilling and transportation, and the complex nature of oil spills (Cordes et al., 2016; Stoddart and Quinn Burt, 2020; Watson and Hewson, 2018; Kark et al., 2015; Venegas- Li et al., 2019). On a global scale, MPAs do not have high spatial occurrence within offshore hydrocarbon licensing blocks, but upwards of 60% of hydrocarbon activities occur in the top 10% areas for species richness and/ or endemicity, therefore may have significant impacts on biodiversity (Venegas- Li et al., 2019).

Beyond risk to marine environments, inconsistent protection standards that allow drilling in or adjacent to MPAs has become of risk to people. Stakeholder conflicts where offshore petroleum and protected areas overlap have occurred in Newfoundland and Labrador (NL) (Gies, 2017; Wilt, 2017) and Australia (Davidson, 2018; Morton, 2020), off the coast of NS (De Souza, 2013; Meloney, 2018) and in the Gulf of St. Lawrence (Stoddart and Graham, 2017). Conflicts between fossil fuel extraction and marine based livelihoods are a persistent challenge and growing as pressure to expand the offshore oil and gas sector intensifies.

Methods

The majority of oil and gas activities have occurred on the Scotian shelf, but this study broadens the scope to NS’s vast offshore region. First, to develop a broad understanding of the oceans governance framework, offshore oil and gas development, marine conservation and spatial planning in the region, I reviewed policy

and research documents, news articles and publicly available submissions to consultation processes. This material formed the basis of the context and actors and case studies.

From the literature review, I developed a list of strategic actors interacting on MPA networks and offshore petroleum to conduct interviews. This list was enlarged via "snowball" sampling (I asked interviewees to recommend other key contacts). In accordance with research ethics processes approved by York University's Human Participant Review Committee, I conducted (and recorded) semi-structured interviews with representatives of key actors. I requested interviews with over 50 individuals; 25 of these agreed. I made two field site visits to Ottawa and NS over the 2019-2020 period to conduct 20 of these interviews in person. In addition, I conducted four interviews by phone or video call, and one interviewee responded to questions in writing. The interviewees included representatives of NS's offshore oil and gas regulator (n=1), federal and provincial departments (n=5), commercial fishers (n=3), environmental non-governmental organizations (ENGOs) (n=8), Indigenous communities (n=2), and independent research experts (n=3).

The interview guide (series of standard questions) used for the interviews was designed to provide a detailed understanding of the following: how regulators identify parcels of the ocean floor as possible areas for exploratory drilling; how government establishes and manages marine conservation areas; consultation processes undertaken with stakeholders; tendencies and constraints around conflict-laden decisions where petroleum interests and marine conservation overlap; stakeholder knowledge of and involvement in MSP; and the integration of Indigenous knowledge. The in-person, phone, and video interviews lasted one hour on average, resulting in a total of 19 hours of interviews.

Next, all the interviews were professionally transcribed. Then I used N-Vivo software to code and analyze the interviews, compare and contrast themes across transcripts, comparing by actor group, to inform my understanding of actor interaction, the case studies, and analysis.

Context: The marine protection / fossil fuel extraction dilemma

Offshore NS manifests ongoing conflicts between marine conservation and fossil fuel extraction. Here, I outline the rise and more recent intensification of marine protection and oil and gas development and describe the key actors working at this contentious intersection.

Federal MPA Networks

Canada's *Oceans Act* (1996) laid the groundwork to develop and implement a national network of MPAs but execution began with a Federal MPA Strategy in 2005 (DFO, 2005). MPA networks in Canada

are defined as, "a collection of individual marine protected areas that operate cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfill ecological aims more effectively and comprehensively than individual sites could alone" (DFO, 2011, p. 8). A National Framework for MPA Networks guides consistent design and governance across 13 bioregions (DFO, 2011) though progress is being made at varying rates across the country (DFO, 2018a).

Three departments may create MPAs that contribute to bioregional networks under three federal statutes (DFO, 2005): Marine Protected Areas can be established by DFO (*Oceans Act,* 1996*)*; Marine Wildlife Areas or Migratory Birds Sanctuary by Environment and Climate Change Canada (*Canada Wildlife Act*, 1985); and National Marine Conservation Areas by Parks Canada (*Canada National Marine Conservation Areas Act,* 2002). The Scotian Shelf is home to a wide range of protected areas (Table 1).

These protected areas are building blocks of MPA networks in Canada but Other Effective area-based Conservation Measures (OECMs) are another tool to support diverse species, habitats and ecosystems (DFO, 2016). Though they are not recognised as protected areas in the traditional sense, OECMs are managed over the long-term in ways that deliver the effective in-situ conservation of biodiversity, ecosystem services and cultural and spiritual values (IUCN-WCPA, 2018; Aten et al., 2019).

A main benefit of this tool is that it helps address Canada's slow progress on MPAs (Jessen, 2011). Since it has taken six to ten years to designate MPAs on the Scotian shelf, designating OECMs simultaneously is more efficient than the current site-by-site approach (Jessen et al., 2017). In 2015, a newly elected Liberal government also turned ocean conservation "from the lowest to highest priority overnight" according to a federal official. These efforts resulted in "establishing a whole range of different marine protected areas over the last three and a half years," and increased protection "from less than one per cent to 13.81 per cent."

Canada has come a long way in a short period of time (Jessen et al., 2017) and reaffirmed a stronger marine protection target for 2025 (Trudeau, 2019). Since 2018, a strategic decision was made to advance MPA network planning through a new program of MSP—defined as, "a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives" (Ehler and Douvere, 2009, p. 18). The federal government aims to develop and implement a marine spatial plan in the Scotian bioregion by 2024, emphasizing integration across sectors, participation of multiple stakeholders and a long-term balance between development and conservation (Agardy et al., 2011).

Provincial Offshore Petroleum Interests

The spectrum of hydrocarbon activities has occurred in the Scotian shelf and basin since Mobil Oil conducted the first seismic survey in 1959, from exploration drilling to development, production and decommissioning (Breeze et al., 2005). A 25-year market snapshot highlights three offshore successes: Cohasset-Panuke (1992–1999), Sable Offshore Energy Project (1999–2018) and Deep Panuke (1998–2018) (Canada Energy Regulator, 2017). Cohasset was Canada's first offshore oil project and produced 44.5 million barrels (C-NSOPB, "Cohasset Panuke", n.d.). It ended up being the last commercial oil discovery in NS, but the two subsequent projects produced less lucrative natural gas (Beswick, 2019).

Petroleum projects represent significant economic value to NS, as royalties and taxes directly support provincial programs and contribute to public services and infrastructure. The Sable Offshore Energy Project alone made the province over $4 billion in royalties and taxes and generated employment for 20 years (CAPP, n.d.). To secure more economic benefits, the province markets its skill and expertise in offshore petroleum operations (CAPP, n.d.) and promotes its offshore as an industry-friendly, strategically well-positioned and stable place to host business ("Nova Scotia, Canada's offshore frontier," 2007; Department of Energy and Mines, "Offshore," n.d.).

While there is no petroleum production currently, the province is advancing geoscientific research to reignite investment. Almost all of the exploration activity in NS has been in shallower water and seismic information has been collected periodically but much of it is vintage and costly to digitize. There is fairly good coverage of small areas but sparse coverage of large expanses. To counter the oil industry's perception that the NS offshore region contains few easily accessible reserves, the province invested $15 million to demarcate offshore resources (Department of Energy and Mines, 2011). Even so, consecutive rounds of call for bids in NS have not resulted in awards (C-NSOPB, 2017a; C-NSOPB, 2019). In 2018, Shell capped two offshore wells after finding fewer oil reserves than anticipated and BP followed suit a year later (Gorman, 2018; Bundale, 2019a). The lack of significant discoveries in recent exploration drilling corresponds with the fewer exploration licenses issued (Department of Energy and Mines, 2011).

The outgoing CEO of the C-NSOPB remains hopeful. "You have to remember that the Canada-Nova Scotia offshore area is huge. It's about 450,000 square kilometres." While the region has had 130 exploration wells it is unexplored relative to its size. As Pinks noted, "It would only take, really, one commercially successful exploration well to, again, really turn the tide in terms of the future of oil and gas activity in the offshore area" (Zelinksy, 2019). Recognizing this risk, a coalition of 17 environmental groups and fishing organizations called the Offshore Alliance have called for a complete ban on offshore oil and gas and a full public inquiry of the region's petroleum regulator (Grant, 2019).

Strategic Actors

A range of actors have stakes where offshore petroleum and protected areas overlap. Here, I summarized my participants' primary roles, interests and concerns. Improving ocean management through better science and collaboration is a priority for all, but the task is easier said than done with competing environmental and economic agendas in a highly productive ocean space.

Governments

Federal responsibilities in Canada include fisheries management, crown-Indigenous relations, protecting marine habitats and species-at-risk (DFO, 2009). The federal government has jurisdiction over the exclusive economic zone and the right and interest to exploit mineral resources in the continental shelf (Becklumb, 2013). But NS operates under a special agreement with the federal government to share the revenue of offshore oil and gas resources (see section 4.3.2.). The provincial Department of Energy leads efforts to attract offshore oil and gas investments given this strong financial incentive. Fearful that rural areas may become ghost towns of unemployment, provincial leaders have been vocal advocates of petroleum for decades (Clancy, 2011). For this reason, the province is concerned that federal marine conservation efforts are perceived as a major hindrance, "warding off industry" and challenging marketing for offshore oil and gas. A federal participant acknowledged that "it's been difficult with NS in particular, as they have economic interests. They feel as though they've done enough in terms of marine conservation, and they don't want any more conservation areas in their waters."

Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB)

Since 1990, the C-NSOPB has played a central role in the administration and management of offshore petroleum activities as a life cycle regulator. It interprets geoscientific information, carries out licensing, and is responsible of ensuring activities occur safely with environmental protection in mind (C-NSOPB, "Who we are," n.d.). The C-NSOPB is an independent, joint federal-provincial agency under the *Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act*s (*Accord Acts,* 1988) with "the legal powers and capacities of a corporation" (p. 6) and mirrored legislation for the governments to co-manage offshore oil and gas activities (Denstedt and Thrasher, 2007).

Before any oil and gas operations begin, operators have to be issued licenses and are further subject to downstream regulatory checks and balances once a project is proposed through Environmental Assessments and other approvals (C-NSOPB, "Environmental assessments," n.d). The C-NSOPB has exclusive power to issue exploration, significant discovery and production licences by way of a "fundamental decision." It provides notice of this decision to federal and provincial ministers, who have 30

days to approve, delay or jointly veto (*Accord Acts*, 1988). Strategic Environmental Assessments (SEAs) are conducted prior to licensing in new areas to determine baseline environmental effects associated with oil and gas activities and to identify mitigative measures (C-NSOPB, "Environmental assessments," n.d.; Kapoor, 2020). Then, licenses are issued through a call for bids process that begins with land nominations (C-NSOPB, "Call for bids," n.d.), most often made anonymously by industry. The location and spatial extent of parcels is primarily based on the interpreted oil and gas potential of the area. Not every round results in the award of exploration licences and even the issuance of an exploration licence does not always result in offshore activity taking place (C-NSOPB, "Maps and coordinates," n.d.).

The call for bids process has changed over time to increase accessibility and transparency with marine stakeholders. The sixty days of the annual call for bids period are open to public comment. Engagement in the process began in 2001 and is carried out through media releases, newsletters, social media, targeted emails and a dedicated website (www.callforbids.ca). The C-NSOPB also introduced forecast maps to project call for bids using a three-year schedule, providing stakeholders an opportunity to anticipate where licensing may occur in the future.

Commercial Fisheries

Commercial fisheries in NS are lucrative and powerful industry players. NS is Canada's number one seafood exporter with an industry valued at $2 billion annually (Walton, 2019) employing 18,000 people (DFO, 2020a). Snow crab, halibut, tuna, shrimp and lobster from the province reach over 75 countries (Nova Scotia Business Inc., 2020). Due to the economic importance of fisheries in NS, a Fisheries Advisory Committee (FAC) was created by the C-NSOPB in 2005 to facilitate communication with commercial fishers (C-NSOPB, 2005). Members are given an opportunity to participate in SEAs, prior to licensing decisions, and when call for bids are announced.

Fishers have a history of being vocal and reactive to petroleum development proposals in NS but to us they also mentioned that the ability and capacity to respond to issues is their biggest challenge. Opposition to offshore oil and gas is best exemplified by the moratorium on one of the region's most productive fishing grounds, Georges Bank, in place since 1998 and extended to 2022 (Rhyno, 2015). Outside of Georges Bank, some fishers described a willingness to coexist with offshore oil and gas activities but have concerns about direct impacts from seismic activity and oil spills. To them, industry proponents and the C-NSOPB must be accountable. Fishers also demand more transparency on how royalties circle back to communities the same way that revenues from fishing does.

The establishment of MPAs and OECMs is a significant tension for this group of actors in NS. According to a seasoned fisher who worked in the lobster fishery for 50 years and owned and operated a

fish plant, "Trust is a major, major problem and it goes back to the Gully…the very first MPA." When the federal government proposed the MPA a main issue was protecting the deep coldwater coral from fishing mobile gear. The fisher said, "we talked to them very specifically about hook and line and said this is critically important for us." The fishery harvested 90,000 pounds of red hake (*Urophycis chuss*) which also supported a substantial amount of activity at the fish plant. The federal government promised that the fishery would not be impacted by the MPA, "but within a short period of time they threw us out. They said no more hook and line and that really kind of set the stage for MPAs."

This tension has been exacerbated where limits are placed on access to commercial fishing but not on oil and gas activities. The federal government recently changed regulations for MPAs to exclude all extractive uses, but their relationship with fishers in the region was already fraught with mistrust due to past institutional failures (Loucks, 2007; Puley, 2017). One fisher said there is "very little faith in the word of the federal government" because they have "systematically damaged the fishery on the east coast of Canada since the 1980s."

Environmental Non-Governmental Organizations (ENGOs)

Most ENGOs in my research have been actively involved with marine conservation and offshore petroleum development issues for over 20 years. I interviewed organizations with national and local mandates with differences in membership and reach and learned that ENGOs often form coalitions to leverage pressure federal and provincial government (Puxley et al., 2018). Opposition to offshore oil and gas from environmental groups is not surprising but has notably centered around climate change and intergenerational equity issues in recent years. An ENGO participant said, "we know we have a climate emergency and we should not be expanding fossil fuel production, period." Another interviewee added, "it's time get real about our climate commitments as a country…we're in a climate crisis, so let's freeze the footprint." Groups support the establishment of MPAs or OECMs and some participate in relevant advisory committees led by the federal government. They tend to follow industry developments closely and research on the potential impacts of oil and gas exploration and development near protected areas.

In general, ENGOs are reactive and take strategic actions depending on their capacity and resources, sometimes forgoing larger asks for incremental changes. Some organizations interviewed have called for a complete ban on offshore oil and gas activity while larger organizations are working within the system to influence process improvements. Although fishers can be opposed to MPAs, a group of small fishing businesses part of the Clean Ocean Action Committee have called for a complete ban of offshore oil and gas, and thus align more with environmental groups in the province (Clean Ocean Action Committee, 2019).

Indigenous Communities

The lands and waters of NS are the traditional territory of the Mi'kmaq, for whom conservation is a way of life. The Mi'kmaq concept of 'netukulimk' emphasizes an all-encompassing relationship with the universe and respect of all living things. Resources are harvested without jeopardizing the integrity, diversity and productivity of the environment (Sylliboy et al., 1993). A participant explained that sustainability to them is, "looking to the next seven generations."

But Indigenous influence and involvement in marine conservation remains a work in progress. Understanding of the Mi'kmaq relationship with the environment can be derived from songs, stories, dance, art, rituals and practices (Sylliboy et al., 1993) but the two-eyed seeing approach in conservation planning is limited in practice. An Indigenous participant explained even their organization is "internally trying to figure out how that all works."

In 2018, Canada began exploring a new governance model to create Indigenous Protected Conservation Areas (IPCAs) to engage Indigenous coastal communities as full and equal partners in marine conservation planning; recognizing IPCAs in law, providing permanent and long-term funding to manage them, and enhancing collaborative learning opportunities (Zurba et al., 2019). Indigenous engagement is emphasized in MSP as well, "to advance the philosophy of shared decision-making and planning together" (DFO, 2019b).

Mi'kmaq interviewees were not opposed to offshore oil and gas activities, but an immediate concern was call for bids close to aboriginal fishing grounds. A participant said, "especially lobster fishing, it is quite a big industry for our Mi'kmaq commercial fisheries." Accidents are another concern. When BP accidentally discharged 136,000 liters of drilling mud onto the ocean floor in 2018 (De Souza, 2018) an assembly of Nova Scotia Mi'kmaq chiefs demanded greater accountability, saying incidents like this are unacceptable in Mi'kma'ki (Meloney, 2018). Finally, participants expressed that the revenue from offshore petroleum rarely supports their socio-economic revival.

Case Studies: Conflict and Resolution

Offshore oil and gas production have not occurred in any existing MPAs in NS, but several call for bids were in close proximity, with exploration licenses abutting protected area boundaries (Table 2). Where petroleum activities occur near protected areas, the federal government and the C-NSOPB develop "expanded mitigation" measures. The federal government may also prohibit active licenses in or near MPAs

and offer compensation, but the preference is to approach industry to see if they would be willing to relinquish active licenses.

The Gully MPA, 200 kilometers offshore, is most implicated by oil and gas activities in NS. It is the largest submarine canyon in the eastern North Atlantic and a sanctuary for deep water whales (DFO, 2020b). A significant discovery licence exists in zone three of the Gully, but the license was not active prior to the establishment of the MPA in 2004 (C-NSOPB, "Maps and coordinates," n.d.). The C-NSOPB agreed to keep the license off limits due to the Gully's critical habitat (Shrimpton et al., 2003) and adopted a Gully policy with a vicinity clause to manage transboundary impacts (VanderZwaag and Macnab, 2009). A federal official mentioned, "The Board has worked quite well with us in the Gully. We've been successful in ensuring that when there are activities in the vicinity there is appropriate monitoring to determine what the effects are and make sure that they're meeting the threshold."

While the Gully is a good example of collaboration among actors, the following three key cases where petroleum licensing has spatially overlapped with, or been in proximity to, offshore protected areas, involved notable stakeholder conflicts that I have analyzed to understand how conflict was mitigated or resolved. I present an overview of these cases below then discuss findings in the subsequent section.

Case Study 1: Vocal opposition to exploratory drilling on Sable Island National Park Reserve

Sable Island is a crescent sandbar 300 kilometres off the coast of Halifax known for its mystical wild horses (Parks Canada, 2019a). In 2013, the federal and provincial governments decided to protect Sable Island under the *Canada National Parks Act (*2000)—the strongest protective legislation in Canada to conserve natural landscape in one of the country's wildest and remote environments (Parks Canada, 2019a; Lucas, 2018). The proposal was met with overwhelming support during a 3-month public consultation. Over 2,800 written submissions were directed to the federal government to impress the importance of maintaining its ecological integrity, encourage visitor experiences and manage oil and gas activities (Parks Canada, 2019a). An environmental campaigner involved in the effort explained that most Canadians can only imagine what Sable Island looks but feel compelled to protect it. The participant said, "If you're a Nova Scotian, Sable Island is really important to you. Extremely important to you. Chances are, your perception is, it's so important, I should probably never go there. I just want to protect it."

However, long before it had any protection, Sable Island was the center of offshore petroleum activity in NS. Interest in hydrocarbon reserves increased throughout the 1980s and the province saw Sable gas as a gateway to an offshore bonanza. With the Sable Offshore Energy Project, NS began exporting to New England states south of the border (Bergman, 1997). Seismic, drilling and production activities have occurred on the island's surface and subsurface since (C-NSOPB, 2017b).

When it became a National Park, a legislative ban was placed on any drilling for petroleum resources from the surface of Sable Island and out to one nautical mile (Parks Canada, 2019a). Nearly all National Parks in Canada prohibit oil and gas exploration and development on the surface and subsurface (*Canada National Parks Act,* 2000) but Sable Island is an exception. Directional drilling underneath the island is still allowed (De Souza, 2013), and "there's lots of potential risks related to that, not the least of which is actually subsidence of the island," said an ENGO participant.

Environmental groups had campaigned to eliminate oil and gas activities in and around Sable Island entirely, but one organization explained that it came down to legal jurisdiction. Because the offshore island falls under the C-NSOPB jurisdiction and the *Accord Acts* (see section 4.3.1) "have a paramountcy clause" a participant clarified; it overrides national park legislation (*Canada National Parks Act,* 2000). ENGOs were aware that amending the accords would be a challenge but amplified pressure on federal and provincial governments.

The environmental campaign to prohibit gas extraction on Sable Island was "successful at prohibiting drilling on the island's surface" a participant concluded. At the very least, groups felt their efforts brought some protection to the island. "We celebrated the park even though it wasn't perfect, but we wanted it to be improved over time." From a campaign perspective, the participant added, "it is helpful that it is a National Park because people understand that National Parks are important. We're very astute toward the need for the local community to know that Sable Island is well protected. That's what Nova Scotians demand." The federal government conceded, "…it was one of the places where everybody agreed [we] needed to protect the surface of the island."

But in 2018, the C-NSOPB placed two industry-nominated parcels located in the Sable sub basin up for bid, which reignited the discussion on protection standards around the island. ENGOs demanded the C-NSOPB withdraw the National Park from the bid round; they received more than 3272 submissions in a letter-writing campaign during a public consultation period (C-NSOPB, 2018). Environmental groups still believe that "call for bids should never include Sable Island. That's the change that's needed." The call for bids near Sable Island were not withdrawn, but the round ended with no bids and the case was closed.

When a management plan for Sable Island was released a year later, some ENGOs were disappointed it did not tighten regulations on petroleum activities (Parks Canada, 2019b; Bundale, 2019b). A participant explained the crux of the issue is appropriate amendment to the *Accord Acts*. As it stands, the C-NSOPB can make a "fundamental decision" (approved by federal and provincial actors) to authorize sub-surface drilling. It consults Parks Canada as a stakeholder to discuss potential effects and mitigation measures, even though it is the lead park management agency in the country.

Case Study 2: Fishers dissatisfied with exclusion from the Laurentian Channel MPA

The most notable case of a MPA permitting offshore petroleum in Atlantic Canada is the Laurentian Channel in NL's jurisdiction but relevant to this study. The channel is known for its remarkable concentration of sea pens. It supports leatherback sea turtles and is an important feeding and migratory route for whales and dolphins travelling in and out of the Gulf of St Lawrence (DFO, 2019c). It was designated a MPA in 2019; a federal actor said, "the process took ten years from beginning to end and was really thought out." When establishing an MPA, DFO first identifies an Area of Interest (AOI) (DFO, 2020c) and an advisory committee is formed with relevant stakeholders to ensure proposals have some degree of support, especially where it affects coastal communities.

In 2017, the advisory committee proposed making controlled allowances of oil and gas activities in more than 80% of the AOI, while restricting commercial fishing completely (Wilt, 2017). A federal participant explained, "Our proposal at the time was to allow oil and gas in a small area that didn't have the sea pens and we were limiting seismic to when the leatherback turtles were not there." They reasoned that petroleum activity "would not undermine the shared objective of establishing a conservation area."

Local ENGOs led a concerted effort to respond through media and letter-writing campaigns, criticizing the federal government for handing out concessions to the oil and gas industry (Gies, 2017; Wilt, 2017). They held the position that there should be no room for any oil and gas activity in MPAs and that the proposed regulations might set a precedent for other MPAs in the region. During a public comment period, the federal government received 70,000 letters from Canadians demanding the prohibition of oil and gas in the Laurentian Channel and all MPAs. They decided to strike a national panel to get a better sense of Canadians' views on protection standards (DFO, 2019b).

Six panelists were appointed to review hundreds of perspectives and written submissions from coast to coast, before making a recommendation on minimum protection standards for MPAs to the federal government (DFO, 2018b). In 2019, Canada adopted a gold standard of conservation in its MPAs (reflecting IUCN guidelines for strict nature reserves) by ruling a historic ban on oil and gas exploration and extraction, mining, dumping, and bottom trawling (Stolton et al., 2013; DFO, 2019d). ENGOs in our interviews believed these protection standards resulted from public pressure. An interviewee said, "My sense of it is, based upon our real-world experience, that there are no real protections in MPAs unless the impacted communities fight for them."

The proposal to permit oil and gas activities in the Laurentian Channel MPA dramatically deteriorated the relationship of the federal government with commercial fisheries in the region. Until the new protection standards were announced, a fisher described that each new MPA proposal would consider spatial and temporal distribution of industrial activities from ground zero. To fishers this process was

arduous and created a substantial amount of uneasiness in communities. But when oil and gas was permitted in the MPA, a fisher described it as "an insult of the highest order" that led many to walk away frustrated and having lost hope in further engagement.

A fisher argued that if the federal government "restricts any kind of fishing activity there should be no oil and gas, period. MPAs don't scare me as long as conservation is the goal and not eliminating fishing…We're all for protecting areas of the ocean from oil and gas or any other industrial uses, but that doesn't seem to be the focus of the department…The only thing they seem to be protecting [MPAs] from is us and we're totally against that."

Case Study 3: Uncertainty and frustration over industrial activities permitted in Other Effective area-based Conservation Measures (OECMs)

Minimum protection standards for MPAs appeased the discontent of some fishers and ENGOs but many remain concerned about protections in and around OECMs. Following the National Advisory Panel, the federal government decided that any allowances or restrictions on extractive industry in OECMs would be evaluated on a case-by-case basis (DFO, 2019d). This means call for bids can legally overlap with OECMs in offshore NS even though they form part of MPA networks. Where exploration or extraction occurs, a federal official said, "that parcel is not counted towards Canada's marine conservation targets."

The most common example of OECMs are marine refuges under the *Fisheries Act* (1985); NS has six that have fisheries restrictions (Table 1). Marine refuges such as the Jordan Basin and Lophelia Coral Conservation Areas prohibit all commercial bottom contact gear because of their sensitive seafloors (DFO, 2020d). But some marine refuges allow oil and gas activities, which is most perplexing to fishers. One of them said if there are fishing restrictions and no limits on oil and gas activity, "then it is not a refuge, but simply a fisheries exclusion zone."

The federal government urges marine stakeholders to think of OECMs "as targeted conservation measures" but fishing is deeply engrained in NS's cultural and spiritual fabric and it goes beyond a matter of conservation. A fisher explained, "There's a real relationship between the resource and the people…it's simply not known by those who don't live on the coast and have that close association with the ocean." Another participant described, "I'm from a small fishing community and there's a fishing season where everyone's involved somehow…in these small communities, it's all about fishing." Yet fishers in NS perceive governments to be in favour of fossil fuel expansion and argue that they live the reality of having no access to a generational resource versus decision-makers who are one step removed. This is largely considered a flaw in consultation processes undertaken to establish MPA network sites such marine refuges.

Some of this tension can be resolved through better consultation according to a federal participant who said, "One of the dynamics we see is that fishers make a big deal about oil and gas activity in marine

refuges not because they have any concern about impacts to fisheries. It's more, if we can't go in there, nobody else should…I think we need to see that for what it is and do a better job of managing stakeholders." Fishers were prepared to have a reasonable discussion about sharing the ocean. One of them said, "we just want to believe that we are understood to be a valuable piece of the puzzle."

ENGOs believe call for bids should never spatially overlap with marine refuges. It was a major accomplishment to secure minimum protection standards for MPAs but marine refuges remain vulnerable. Aten et al. (2019) have offered recommendations to the federal government to review Atlantic Canada's offshore accords and prohibit oil and gas in all OECMs. A few environmental groups also pointed out it is problematic that industrial operators may not necessarily be aware when call for bids overlap with OECMs "because it is not made obvious." Call for bids are released with informational maps for industry and stakeholders that highlight MPAs and Sable island, but OECMs are missing (Figure 1).

Discussion

Our case studies demonstrate that the C-NSOPB and federal and provincial governments are at the center of moderating tensions and trade-offs where offshore petroleum and marine conservation interests overlap; and in general, they demonstrate a willingness to respond to sensitivities when there is overt public concern. For instance, surface drilling on Sable Island was prohibited because of public pressure. Vocal opposition to oil and gas activities in the Laurentian Channel also manifested in minimum protection standards for MPAs nationwide. This section discusses 3 broad issues that arose in the case studies and interviews where it concerns development and conservation in the region: poor consultation processes, mistrust of the petroleum regulator and inadequate socio-economic trade-off analysis.

Improving Consultative Processes

Stakeholder consultations occur in the MPA establishment and the rights issuance processes in NS but participants appear to lack faith in both. On the one hand, a significant impediment to stakeholder participation in call for bids is mistrust of the C-NSOPB as a number of ENGOs, Indigenous groups and commercial fishers perceive it to be a regulator and promoter of offshore petroleum activity (see section 6.2). A fisher criticized consultations saying, "The FAC is a sham set up by the petroleum board so that they can pretend that they actually have some relationship with the fishing industry." No one "who is a serious player" or "who has any real faith" attends the meetings. For these reasons, there is also limited participation from non-government actors in SEAs carried out prior to call for bids in the region (Kapoor, 2020).

The process of establishing MPAs was also criticized by fishers at large. As of 2020 there are two AOIs in NS that are in the process of being designated MPAs: The Eastern Shore Islands and the Fundian Channel-Browns Bank. A federal participant explained that a range of studies are carried out before an AOI is identified, emphasizing consultation. "We do a biophysical overview to understand the ecological components of the ecosystem. We do Indigenous use studies, to better understand how Indigenous peoples use, or have used, that area in the past. We do a risk assessment to understand the impacts of those activities on the conservation objectives of the proposed area. We consult and consult and consult, though people will say we don't consult enough." But when the Eastern Shore Islands AOI was announced in 2018, fishers responded to government saying they were unaware of the proposal and were concerned that it overlaps with the largest commercial lobster fishery in the area (Jones, 2019; Withers, 2019).

It is not surprising that protected areas receive mixed support from fishers because they restrict their freedom of access and movement. This is especially relevant in NS, where fishers have become tangled in the trade-offs between offshore petroleum and protected areas because of past inconsistent marine protection standards and exclusionary conservation policies. The competition for space between fisheries and other stakeholders when scaling up from MPAs to networks requires delicate attention. And, experience suggests that commitment to learning lessons in stakeholder engagement can help overcome consultation roadblocks (Gleason et al., 2013; Jentoft and Knol, 2014).

Lessons can be derived from international cases. New Zealand's MPA network planning process involved novel surveys of local fishers and fisher knowledge to identify areas of importance and calculate maximum potential economic impact (in dollar value and landed catch) for each fishery. Information was then shared among stakeholders to re-evaluate and refine MPA proposals (Gleason et al., 2013). Implementing MPA networks in four regions in California also required adaptive strategies for stakeholder engagement in evolving contexts, grounded in continuous self-evaluation through formal and informal channels over seven years. Group size and makeup were important as well as the balance between extractive and non-extractive actors. An iterative process incorporating multiple rounds of design, evaluation, feedback and redesign was said to help build trust among stakeholders (Fox et al., 2013). Significant fisher involvement in the design of 19 'multiple use' and 'no-take' MPA network sites in South Australia also resulted in 80% more willingness to accept proposals (Fox et al., 2013).

Strengthening Environmental Regulation

More broadly, non-governmental stakeholders believe petroleum interests in the region take precedence over environmental regulation (Kapoor, 2020). The offshore petroleum board is an independent entity that administers the process by which two governments can jointly identify crown reserve lands for exploration licensing, but it was established with a view towards sector growth, which some participants

said is a conflict of interest. The UK's independent oil and gas authority, in contrast, issues offshore rights to industry players but is mandated to maximise economic recovery of oil and gas resources (UK Oil and Gas Authority, n.d.). An ENGO participant referred to Sable Island as the most obvious example where change is needed to the current framework of environmental regulation offshore, suggesting some power and decision making needs to be removed from the petroleum board and transferred to government because, "it's relevant to the public that a National Park be managed as a National Park."

Fishers reiterated that the C-NSOPB is not trusted to license and regulate the environment by many in their community. One of them said, "The examples of the poor quality of regulatory oversight in both NL and NS are so stunning and stark that anyone who can believe that there's actually any functional regulations are just in a dream world." A performance audit of Atlantic Canada's petroleum boards by the Commissioner on Environment and Sustainable Development in 2012 indeed highlighted notable shortcomings; emergency response plans were missing elements and more work was needed to address accidental oil spills (Office of the Auditor General of Canada, 2012). In response to these inadequacies, researchers had written to federal and provincial governments suggesting the creation of an independent environmental authority in the region, "fully committed to transparency to reduce real or perceived conflicts of interest and build trust between regulators and the public," (Fraser and Carter, 2019, p. 3). Criticisms of the petroleum board in NL were made more recently by Carter (2020 in press).

Opposition to offshore oil and gas is mounting because of the perceived power imbalance between petroleum and other interests and environmental concerns in NS. The Offshore Alliance of environmental groups and fishers is bringing along 12 municipalities to demand greater accountability from the C-NSOPB. The ocean feeds the tourism sector in south shore towns of Mahone Bay, Digby, Lunenburg and Bridgewater (Grant, 2019; Campbell, 2019) where lawn signs and bumper stickers read, "Offshore drilling not worth the risk." It is unsustainable to ignore these stakeholder tensions, but decision-makers have so far (Grant, 2019). Jentoft and Knol (2014) argue that "leaving stakeholders to fight for space on their own is a recipe for social and ecological failure" (p. 13). The least powerful stakeholders are often poorly represented given limited resources and risk being ignored in planning. This is often the case with Indigenous and commercial fishers, who suffer from the highest risk of displacement from protected areas (Jentoft and Knol, 2014) and may also be hit hard by seismic disturbance to species (making them harder to catch), altered migration patterns and lower employment in the fishing industry long term (Pascoe and Innes, 2018). Leadership and accountability are lacking in offshore NS where petroleum and conservation intersect, undermining the needs of actors and the environment.

Reconciling Competing Interests and Sector Trade-offs

Finally, NS may never have a significant offshore petroleum industry again because of the type of reserves (Casey, 2019) and the low price of natural gas (Beswick, 2019). Fishers and Indigenous communities suggested that no activity offshore might be an opportunity to evaluate how the petroleum industry provides benefits to local communities, or not. What are the socio-economic trade-offs between extractive industries? How can ecosystem services provided by MPAs and OECMs be valued?

In 2017, DFO incorporated socio-economic data in MPA network design with the intent to combine multiple sectors (commercial fishing, aquaculture, maritime transportation, and offshore oil and gas exploration) and minimize potential economic and social consequences while meeting network objectives (DFO, 2017). A federal official reiterated that some economic analysis is done preliminarily to "determine what opportunity costs could look like…but it is not done enough." A few international studies have attempted to determine socio-economic trade-offs among marine actors. Börger et al. (2014) assessed how public perceive and value conservation benefits arising from the Dogger Bank in the North Sea; Fletcher et al. (2011) evaluated the ecosystem services of England's MPA networks. Geange et al. (2017) considered economic and conservation trade-offs of MPA networks in New Zealand, and Pascoe and Innes (2018) described economic impacts of offshore oil and gas industries on fisheries. Finally, a study of contested ocean space in the German North Sea cautioned that stakeholder conflicts are rooted in how economic costs and benefits are also perceived by actors and whether they undermine tradition and culture (Kannen, 2014).

Managing competing interests is also relevant in NS's federal-provincial context. The *Accord Act*s allowed both governments to come into agreement to co-manage petroleum projects even though they fundamentally disagree on who owns rights to the seafloor (MacDonald and Thompson, 1985; Denstedt and Thrasher, 2007). While licensing decisions are made through legislated partnership, a provincial participant said they are being treated as stakeholders rather than partners in the MPA network planning process and are continually playing catch up. The lack of data on oil and gas resources has resulted in NS resisting further additions to the MPA network. A federal participant said, "…they're trying to hold the entire offshore hostage for some future day where they have a better understanding of where those resources are." A provincial interviewee agreed the "geoscience is sadly lacking" but said federal MPA network planning is "going full speed ahead without us." Unfortunately, SEAs conducted by the C-NSOPB also do not capture these elements adequately (Kapoor, 2020).

NS remains a 'have not' province of Canada and its economy is weakening with a dearth of immigrants and an aging population (Ibbitson, 2015). This is why an ENGO participant suggested "the provincial government hates MPAs with a burning, fiery passion" because it places limits on future extractive development. "Persistent poverty" is considered a structural problem in communities that host extractive projects as dependence puts them at risk of hollowed-out economies and labour markets if an industry or project ceases (Malin et al., 2019, p. 110). This is relevant to NS as the offshore petroleum

industry has ebbed and flowed. Consideration should be given to how boom and bust cycles tied to volatile global market trends affect economies dependent on resource-based extractive activity (Malin et al., 2019). Decision-makers should also examine the negative social and environmental inequities when projects locate in economic conditions most conducive to development, power disparities among those who are impacted, their participation and influence in planning and their access to benefits (Malin et al., 2019). For example, Stoddart and Quinn Burt (2020) studied the socio-ecological and economic distribution of benefits and risks from offshore oil and gas in four North Atlantic regions through an energy justice perspective to attend to the disproportionate risk distribution between ocean actors, and to address who is included or excluded from energy development decisions. Some participants believe MSP may be a process that is open to thinking about sector trade-offs and economic cycles in the region.

Conclusion

MPAs, OECMs and National Parks like Sable Island are governed by different legislations with varying degrees of protection in offshore NS. Therefore, petroleum activity may not be allowed in MPAs but may still occur in OECMs such as marine refuges (DFO, 2019d) and on the subsurface of Sable Island (Parks Canada, 2019b). Dealing with various protected area types offshore and their associated legislations means extractive resource conflicts in the region are nuanced and resolved through an interplay of actors on a case-by-case basis. The mosaic of protections in the bioregion aligns with the intent of MPA network planning, as resilient networks comprise protected areas of different shapes, sizes and objectives (IUCN-WPCA, 2008; DFO, 2011) but conflicts are expected to intensify as more MPAs are created and frictions are bound to occur especially where marine extractive industries are restricted. Different users, exploiting different resources can have different spatial needs and "it should therefore come as no surprise that competition for marine space is often described by invoking the language of war" (Jentoft and Knol, 2014, p. 8).

In NS, implementing MPA networks faces significant challenges (Gleason et al., 2013) compounded by a powerful offshore petroleum industry that is set to drive the blue economy. Since the consultative processes undertaken separately by the two sectors are failing to address broader conflicts on this issue, I end with a view towards the future of ocean management in the region and MSP as a renewed opportunity to address current limitations. DFO is leading MSP in Canada by the recommendation of the National Advisory Panel to consult marine stakeholders in all ocean bioregions so that MPAs, OECMs and IPCAs can be considered within wider issues of ocean planning (Bujold et al., 2018). Offshore oil and gas have also been subjects of MSP globally— playing a unique role as a driver of and stakeholder in the process in many regions (Yates et al., 2018).

Though it requires significant investment of time, funding and capacity as a multi-stakeholder process, MSP can foster long term ecological, political, social and economic benefits (Agardy et al., 2011; Jessen et al., 2017). Stakeholder participation is key in visioning, building trust and facilitating dialogue to develop long-term clarity and shared purpose (Yates et al., 2018; Yates, 2018). It is important to have an eye for risks of the process as well (Kannen, 2014; Jentoft and Knol, 2014). Lessons can be derived from the Eastern Scotian Shelf Integrated Management Plan; Canada's first integrated ocean management initiative that engaged diverse stakeholders over ten years to move from concept to final draft without materializing (Hall et al., 2011) because it "lacked leadership for implementation" (Dutka et al., 2010, p. 1). There are drawbacks to consensus-based decision-making (Flannery and Cinnéide, 2012) but documenting failures and successes is part of the learning process (Ehler and Douvere, 2009).

Since it is still early days, MSP on the Scotian shelf has been a top-down approach involving federal actors. Governance has been a main focus—to avoid duplication and institutional rivalry with NS. A federal participant added, "We're not trying to replicate what's happened in other parts of the world, where you end up with a centralised zoning plan. That's not the vision here in Canada. Not without significant legislative and policy changes." To optimise interests there will likely involve "some hard choices to make" the participant added, but the process is intended to work with and respect existing authorities to create practical tools, methods and approaches to improve compatibility of activities in the bioregion. Most participants remain wary that MSP will live up to its promise in this vast and disputed region.

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References

Agardy, T., Notarbartolo di Sciara, G. & Christie, P. (2011). Mind the gap: Addressing the shortcomings of marine protected areas through large scale marine spatial planning. *Marine Policy, 35*(2), 226-232. doi:10.1016/j.marpol.2010.10.006

Aten, T., Fuller, S., Clowater, R., Wright, K. & Saunders, S. (2019). A technical review of Canada's Other Effective Area-based Conservation Measures: Alignment with DFO guidance, IUCN-WCPA guidance and CBD SBSTTA guidance. Retrieved from https://davidsuzuki.org/wp-content/uploads/2019/01/technical-review-of-canadas-other-effective-area-based-conservation-measures.pdf

Becklumb, P. (2013). Background Paper: Federal and provincial jurisdiction to regulate environmental issues. Library of Parliament. Retrieved from https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/201386E

Bergman, B. (1997, Nov 10). Offshore bonanza: The Sable Island gas project is close to reality. *Maclean's*. Retrieved from https://archive.macleans.ca/article/1997/11/10/offshore-bonanza#!&pid=46

Beswick, A. (2019, Dec 28). Valve closing on Sable offshore gas. *The Chronicle Herald*. Retrieved from https://www.thechronicleherald.ca/news/local/valve-closing-on-sable-offshore-gas-271791/

Börger, T., Hattam, C., Burdon, D., Atkins, J. P. & Austen, M. C. (2014). Valuing conservation benefits of an offshore marine protected area. *Ecological Economics*, *108*(Complete), 229–241. https://doi.org/10.1016/j.ecolecon.2014.10.006

Breeze, H., Coffen-Smout, S., Fenton, D., Hall, T., Herbert, G., Horsman, T., Macnab, P., Millar, D., Strain P. & Yeats, P. (2005). The Scotian shelf: an atlas of human activities. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/321387.pdf

Bujold, R., Simon, M., Anderson, D., Dobell, D., Hayes, T., Léger, M. & Thomas, M. (2018). Final report of the National Advisory Panel on Marine Protected Area standards. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/40727191.pdf

Bundale, B. (2019a, Jan 15). "BP scales back exploration plans off N.S., gives up half its offshore area." *BNN Bloomberg*. Retrieved from https://www.bnnbloomberg.ca/bp-scales-back-exploration-plans-off-n-s-gives-up-half-its-offshore-area-1.1198803

Bundale, B. (2019b, Sep 4). "Federal plan for Sable island will protect ecosystem but won't tighten offshore oil and gas restrictions." *The Guardian*. Retrieved from https://www.theguardian.pe.ca/news/provincial/federal-plan-for-sable-island-will-protect-ecosystem-but-wont-tighten-offshore-oil-and-gas-restrictions-348596/

Campbell, F. (2019, Nov 6). "12 Nova Scotia municipalities call for public inquiry into the impact of offshore drilling and exploration." *The Chronicle Herald*. Retrieved from https://www.thechronicleherald.ca/news/local/12-nova-scotia-municipalities-call-for-public-inquiry-into-the-impact-of-offshore-drilling-and-exploration-372635/

Canadian Association of Petroleum Producers (CAPP) (n.d.). "Offshore projects and exploration in Nova Scotia." Retrieved from http://atlanticcanadaoffshore.ca/offshore-projects-exploration-nova-scotia/

Canada Energy Regulator. (2017). Market snapshot: 25 years of Atlantic Canada offshore oil and gas production. Retrieved from https://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/snpsht/2017/10-10-1tlntcffshrprdctn-eng.html

Canada National Marine Conservation Areas Act. (2002). Retrieved from https://laws-lois.justice.gc.ca/eng/acts/c-7.3/

Canada National Parks Act. (2000). Retrieved from https://laws-lois.justice.gc.ca/PDF/N-14.01.pdf

Canada-Nova Scotia Offshore Petroleum Resources Accord Implementation Act (Accord Acts). (1988). Retrieved from https://laws-lois.justice.gc.ca/PDF/C-7.8.pdf

Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB). (n.d.). "Call for bids." Retrieved from https://www.cnsopb.ns.ca/what-we-do/lands-management/call-for-bids

C-NSOPB. (n.d.). "Cohasset Panuke." Retrieved from https://www.cnsopb.ns.ca/offshore-activity//legacy-production-projects/cohasset-panuke

C-NSOPB. (n.d.). "Environmental assessments." Retrieved from https://www.cnsopb.ns.ca/what-we-do/environmental-protection/environmental-assessments

C-NSOPB. (n.d.). "Maps and coordinates." Retrieved from https://www.cnsopb.ns.ca/what-we-do/lands-management/maps-and-coordinates

C-NSOPB. (n.d.). "Who we are." Retrieved from https://www.cnsopb.ns.ca/get-to-know-us/who-we-are

C-NSOPB. (2005). Fisheries Advisory Committee: Terms of reference. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/fac_terms_of_reference.pdf

C-NSOPB. (2017a). Offshore board announces results of Call for Bids NS17-1. Retrieved from https://www.cnsopb.ns.ca/news/offshore-board-announces-results-of-call-for-bids-ns17-1-1
C-NSOPB. (2017b). Oil & Gas exploration & production in the Sable Island Area. Retrieved from https://sableislandfriends.ca/wp-content/uploads/2019/04/E-3-Oil-and-Gas-Exploration-in-the-Sable-Island-area.pdf
C-NSOPB. (2018). Call for Bids NS 18-3. Retrieved from https://callforbids.ca/
C-NSOPB. (2019). Canada-Nova Scotia Offshore Petroleum Board Announces Results of Call For Bids NS18-3. Retrieved from https://www.cnsopb.ns.ca/news/canada-nova-scotia-offshore-petroleum-board-announces-results-of-call-for-bids-ns18-3
Canada Wildlife Act. (1985). Retrieved from https://laws-lois.justice.gc.ca/eng/acts/w-9/
Cordes, E. E., Jones, D. O. B., Schlacher, T. A., Amon, D. J., Bernardino, A. F., Brooke, S., Carney, R., De Leo, D. M., Dunlop., K. M., Escobar-Briones, E. G., Gates, A. R., Génio, L., Gobin, J., Henry, L. A., Herrera, S., Hoyt, S., Joye, M., Kark, S., Mestre, N. C., Metaxas, A., Pfeifer, S., Sink, K., Sweetman, A. K. & Witte, U. (2016). Environmental Impacts of the Deep-Water Oil and Gas Industry: A Review to Guide Management Strategies. *Front. Environ. Sci*. 4, 58. doi: 10.3389/fenvs.2016.00058
Carter, A. (2020, in press). *Fossilized: Environmental Policy in Canada's Petro-Provinces During the Last Oil Boom*. Vancouver: UBC Press.
Casey, Q. (2019, Jan 16). "Nova Scotia offshore goes silent; Newfoundland ramping up." *The Telegram*. Retrieved from https://www.thetelegram.com/business/nova-scotia-offshore-goes-silent-newfoundland-ramping-up-275621/
Clancy, P. (2011). *Offshore Petroleum Politics: Regulation and risk in the Scotian Basin*. Vancouver: UBC Press.
Clean Ocean Action Committee. (2019, Feb 6). Re: DFO intentions for "Marine Protected Areas" and "Marine Refuge Areas" as related to the exploration and extraction of oil and gas reserves. [Letter].
Davidson, H. (2018, May 6). "Impending blight: how Statoil's plans threaten the Great Australian Bight." *The Guardian*. Retrieved from https://www.theguardian.com/environment/2018/may/07/impending-blight-how-statoils-plans-threaten-the-great-australian-bight
Denstedt, S. & Thrasher, R. J. (2007). The Accord Acts 20 years later. *The Dalhousie Law Journal, 30*(2), 287-339.
Department of Energy and Mines, Nova Scotia. (n.d.). "Offshore." Retrieved from https://energy.novascotia.ca/oil-and-gas/offshore
Department of Energy and Mines, Nova Scotia. (n.d.). "Economic benefits." Retrieved from https://energy.novascotia.ca/oil-and-gas/offshore/economic-benefits
Department of Energy and Mines, Nova Scotia. (2011). "Play fairway analysis project: executive summary." Retrieved from https://energy.novascotia.ca/sites/default/files/files/A01_Executive%20Summary.pdf
Department of Energy and Mines, Nova Scotia. (2020). Budget 2020–21: Business Plan. Retrieved from https://beta.novascotia.ca/sites/default/files/documents/1-2306/business-plan-2020-21-department-energy-and-mines-en.pdf
De Santo, E. M. (2013). Missing marine protected area (MPA) targets: How the push for quantity over quality undermines sustainability and social justice. *Journal of Environmental Management, 124*, 137-146. doi:10.1016/j.jenvman.2013.01.033
De Souza, M. (2013, Apr 19). "Sable Island National Park could permit gas drilling." *Montreal Gazette*. Retrieved from https://www.pressreader.com/canada/montreal-gazette/20130419/281578058148030
De Souza, M. (2018, Jun 22). "BP Canada spews thousands of litres of toxic mud during offshore drilling incident near Halifax." *National Observer*. Retrieved from https://www.nationalobserver.com/2018/06/22/news/bp-canada-spews-thousands-litres-toxic-mud-during-offshore-drilling-incident-nea
Dutka, S., Hunka, R. & McNeely, J. (2010). ESSIM: Eastern Scotian Shelf Integrated Management Plan: A case study of a successful IMCAM plan (ESSIM Plan) lacking leadership for implementation. Retrieved from https://www.mapcmaars.ca/theblog/archive/essimstudy.pdf
Ehler, C. & Douvere, F. (2009). Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission, Manual and Guides No. 53. UNESCO, Paris.
Evans, S. M. (1986). Control of marine pollution generated by offshore oil and gas exploration and exploitation: The Scotian shelf. *Marine Policy, 10*(4), 258- 270. https://doi.org/10.1016/0308-597X(86)90002-3
Fisheries Act. (1985). Retrieved from https://laws-lois.justice.gc.ca/eng/acts/f-14/
Fisheries and Oceans Canada (DFO). (2005). Canada's Federal Marine Protected Areas Strategy. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/315822e.pdf
DFO. (2009). The role of the Canadian government in the oceans sector. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/337909.pdf

DFO. (2011). National Framework for Canada's Network of Marine Protected Areas. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/345207.pdf
DFO. (2016). Guidance for Identifying 'Other Effective Area-Based Conservation Measures' in Canadian Coastal and Marine Waters. Retrieved from https://waves-vagues.dfo-mpo.gc.ca/Library/365364.pdf
DFO. (2017). Guidance on incorporating economic use information into marine protected area network design. Retrieved from https://www.dfo-mpo.gc.ca/ea-ae/economic-analysis/incorporating-economic-information-mpa-network-integration-renseignements-economiques-reseaux-amp-eng.htm#1
DFO. (2018a). Report on Canada's Network of Marine Protected Areas, December 2018. Retrieved from http://publications.gc.ca/collections/collection_2019/mpo-dfo/Fs23-610-2018-eng.pdf
DFO. (2018b). Submissions to the National Advisory Panel on Marine Protected Area standards. Retrieved from https://www.dfo-mpo.gc.ca/oceans/conservation/advisorypanel-comiteconseil/submissions-soumises/index-eng.html
DFO. (2019a). Canada's marine protected and conserved areas. Retrieved from https://www.dfo-mpo.gc.ca/oceans/conservation/areas-zones/index-eng.html
DFO. (2019b). National Advisory Panel on Marine Protected Area standards. Retrieved from https://www.dfo-mpo.gc.ca/oceans/conservation/advisorypanel-comiteconseil/index-eng.html
DFO. (2019c). Laurentian Channel Marine Protected Area (MPA). Retrieved from https://www.dfo-mpo.gc.ca/oceans/mpa-zpm/laurentian-laurentien/index-eng.html
DFO. (2019d). Backgrounder: New standards to protect Canada's oceans. Retrieved from https://www.canada.ca/en/fisheries-oceans/news/2019/04/backgrounder-new-standards-to-protect-canadas-oceans.html
DFO. (2020a). Employment. Retrieved from https://www.dfo-mpo.gc.ca/stats/cfs-spc/tab/cfs-spc-tab2-eng.htm
DFO. (2020b). The Gully Marine Protected Area (MPA). Retrieved from https://www.dfo-mpo.gc.ca/oceans/mpa-zpm/gully/index-eng.html
DFO. (2020c). Establishing new Marine Protected Areas. Retrieved from http://www.dfo-mpo.gc.ca/oceans/aoi-si/index-eng.html
DFO. (2020d). Marine refuges across Canada. Retrieved from https://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/index-eng.html
Flannery, W. & Ó Cinnéide, M. (2012). Deriving Lessons Relating to Marine Spatial Planning from Canada's Eastern Scotian Shelf Integrated Management Initiative. *Journal of Environmental Policy & Planning*, *14*(1), 97–117. https://doi.org/10.1080/1523908X.2012.662384
Fletcher, S., Saunders, J. & Herbert, R. (2011). A review of the ecosystem services provided by broad-scale marine habitats in England's MPA network. *Journal of Coastal Research,* 378-383. Retrieved from www.jstor.org/stable/26482197
Fox, E., Poncelet, E., Connor, D., Vasques, J., Ugoretz, J., McCreary, S., Monié, D., Harty, M. & Gleason, M. (2013). Adapting stakeholder processes to region-specific challenges in marine protected area network planning. *Ocean and Coastal Management*, *74*(Complete), 24–33. https://doi.org/10.1016/j.ocecoaman.2012.07.008
Fraser, G. & Carter, A. (2019, Jan 10). Re: Recommendation to Establish an Independent Environmental Authority for Newfoundland and Labrador's Offshore Oil and Gas Sector [Letter].
Geange, S. W., Leathwick, J., Linwood, M., Curtis, H., Duffy, C., Funnell, G. & Cooper, S. (2017). Integrating conservation and economic objectives in MPA network planning: A case study from New Zealand. *Biological Conservation*, *210*(Part A), 136–144. https://doi.org/10.1016/j.biocon.2017.04.011
Gleason, M., Fox, E., Ashcraft, S., Vasques, J., Whiteman, E., Serpa, P., Saarman, E., Caldwell, M., Frimodig, A., Miller-Henson, M., Kirlin, J., Ota, B., Pope, E., Weber, M. & Wiseman, K. (2013). Designing a network of marine protected areas in California: Achievements, costs, lessons learned, and challenges ahead. *Ocean and Coastal Management*, *74*(Complete), 90–101. https://doi.org/10.1016/j.ocecoaman.2012.08.013
Gies, E. (2017, May 9). "Canada's new Marine (less) Protected (than it could have been) Area." *Hakai Magazine*. Retrieved from https://www.hakaimagazine.com/news/canadas-new-marine-less-protected-it-could-have-been-area/
Gorman, M. (2018, Nov 17). "Energy minister undeterred as offshore drilling dries up." *CBC News*. Retrieved from https://www.cbc.ca/news/canada/nova-scotia/offshore-drilling-bp-shell-petroleum-natural-resources-1.4910327
Grant, T. (2019, Nov 5). "Nova Scotia not considering offshore oil and gas moratorium, despite request from municipalities." *The Star*. Retrieved from https://www.thestar.com/halifax/2019/11/05/nova-scotia-not-considering-offshore-oil-and-gas-moratorium-despite-request-from-municipalities.html

Hall, T., MacLean, M., Coffen-Smout, S. & Herbert, G. (2011). Advancing objectives-based, integrated ocean management through marine spatial planning: current and future directions on the Scotian Shelf off Nova Scotia, Canada. *Journal of Coast Conservation* 15, 247–255. https://doi-org.ezproxy.library.yorku.ca/10.1007/s11852-011-0152-5

Hussain, Y. (2016, Mar 24). "How big oil is keeping the faith in Canada's East coast: 'one of the last great undeveloped frontiers." *Financial Post*. Retrieved from https://business.financialpost.com/commodities/energy/how-big-oil-is-keeping-the-faith-in-canadas-east-coast-one-of-the-last-great-undeveloped-frontiers

Ibbitson, J. (2015, Mar 20). "How the Maritimes became Canada's incredible shrinking region." *Globe and Mail*. Retrieved from https://www.theglobeandmail.com/news/national/how-the-maritimes-became-canadas-incredible-shrinking-region/article23554298/

IUCN World Commission on Protected Areas (IUCN-WCPA) (2008). *Establishing Marine Protected Area Networks—Making It Happen*. Washington, DC: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy.

IUCN-WCPA. (2018). (Draft) Guidelines for Recognising and Reporting Other Effective Area-based Conservation Measures. IUCN, Switzerland. Version 1.

Jentoft, S. & Knol, M. (2014). Marine spatial planning: risk or opportunity for fisheries in the North Sea? *Maritime Studies 12*(13). https://doi.org/10.1186/2212-9790-12-13

Jessen, S. (2011). A review of Canada's implementation of the Oceans Act since 1997 – from leader to follower? *Coastal Management, 39*(1), 20- 56. doi: 10.1080/08920753.2011.544537

Jessen, S., Morgan, L. E., Bezaury-Creel, J. E., Barron, A., Govender, R., Pike, E. P., Saccomanno, V. R., & Moffitt R. A. (2017). Measuring MPAs in Continental North America: How Well Protected Are the Ocean Estates of Canada, Mexico, and the USA? *Front. Mar. Sci.* 4:279. doi: 10.3389/fmars.2017.00279

Jones, C. (2019, Jul 31). Terms of reference of the National Panel on Marine Protected Area standards [letter]. Retrieved from https://www.dfo-mpo.gc.ca/oceans/documents/conservation/advisorypanel-comiteconseil/submissions-soumises/Association-of-Eastern-Shore-Communities-Protecting-Environment-and-Historic-Access.pdf

Kannen, A. (2014). Challenges for marine spatial planning in the context of multiple sea uses, policy arenas and actors based on experiences from the German North Sea. *Regional Environmental Change* (14), 2139–2150. https://doi.org/10.1007/s10113-012-0349-7

Kapoor, A. (2020). Not so strategic? Actors divided over utility of Strategic Environmental Assessments for offshore petroleum development in Nova Scotia, Canada. [Unpublished master's thesis]. York University.

Kark, S., Brokovich, E., Mazor, T., Levin, N. (2015). Emerging conservation challenges and prospects in an era of offshore hydrocarbon exploration and exploitation. *Conservation Biology, 29*(6), 1573-1585. doi:10.1111/cobi.12562

Loucks, L. (2007). Patterns of fisheries institutional failure and success: Experience from the Southern Gulf of St. Lawrence snow crab fishery, in Nova Scotia, Canada. *Marine Policy, 31*(3), 320-326. https://doi.org/10.1016/j.marpol.2006.09.005

Lucas, Z. (2018). Sable Island National Park Reserve. Retrieved from https://sableislandinstitute.org/sable-island-national-park-reserve/

MacDonald, C. M. & Thompson, R. S. G. (1985). The Atlantic Accord: The Politics of Compromise. *Alberta Law Review, 24*(1), 61-80. https://doi.org/10.29173/alr731

Malin, S. A., Ryder, S., & Lyra, M. G. (2019). Environmental justice and natural resource extraction: intersections of power, equity and access. *Environmental Sociology*, *5*(2), 109–116. https://doi.org/10.1080/23251042.2019.1608420

Meloney, N. (2018, Jun 26). "Mi'kmaq want answers from BP Canada after drilling mud spill off Nova Scotia." *CBC News*. Retrieved from https://www.cbc.ca/news/indigenous/bp-canada-drilling-mud-spill-mikmaq-chiefs-west-aquarius-nova-scotia-1.4721347

Morton, A. (2020, Feb 25). Great Australian Bight: Equinor abandons plans to drill for oil. *The Guardian*. Retrieved from https://www.theguardian.com/environment/2020/feb/25/great-australian-bight-equinor-abandons-plans-to-drill-for-oil

"Nova Scotia, Canada's Offshore Frontier." (2007). *World Oil*. Retrieved from http://search.proquest.com/docview/196682168/

Oceans Act. (1996). Retrieved from https://laws-lois.justice.gc.ca/PDF/O-2.4.pdf

Office of the Auditor General of Canada. (2012). Report of the Commissioner of Environment and Sustainable Development. Chapter 1: Atlantic offshore oil and gas activities. Retrieved from http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201212_01_e_37710.html

Nova Scotia Business Inc. (2020). "Seafood." Retrieved from https://www.novascotiabusiness.com/business/seafood

Parks Canada. (2019a). Sable Island National Park Reserve – Park Establishment. Retrieved from https://www.pc.gc.ca/en/pn-np/ns/sable/info/creation

Parks Canada. (2019b). Sable Island National Park Reserve of Canada Management Plan. https://www.pc.gc.ca/en/pn-np/ns/sable/info/plan/gestion-management-2019#recommendations

Pascoe, S., & Innes, J. P. (2018). Economic impacts of the development of an offshore oil and gas industry on fishing industries: A review of experiences and assessment methods. *Reviews in Fisheries Science & Aquaculture, 26*(3), 350-370. doi:10.1080/23308249.2018.1436521

Puley, M. (2017). *Dissecting Co-management – An Examination of Fishermen Involvement in Fisheries Management in Nova Scotia, Canada* [Unpublished master's thesis]. Dalhousie University.

Puxley, P., Fitzgerald, G., Butler, M., Davis, J., LeBoutillier, G. & Giles, A. (2018, Jul 17). Re: Public Inquiry on offshore drilling [letter]. Retrieved from https://nsadvocate.org/2018/07/18/open-letter-to-prime-minister-justin-trudeau-re-public-inquiry-on-offshore-drilling/

Rhyno, D. (2015, Jul 20). "Nova Scotia, Canada extend offshore oil and gas moratorium in ecologically rich Georges Bank." *The Narwhal*. Retrieved from https://thenarwhal.ca/nova-scotia-canada-extend-offshore-oil-and-gas-moratorium-ecologically-rich-georges-bank/

Shrimpton, M., de Jonge, B., McIsaac, L. & Cadigan, S. (2003). *Atlantic Canada Offshore Petroleum Exploration Rights Permitting Study*. St. John's: Atlantic Canada Petroleum Institute.

Solandt, J.-L., Jones, P., Duval-Diop, D., Kleiven, A. R., & Frangoudes, K. (2014). Governance challenges in scaling up from individual MPAs to MPA networks. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *24*(S2), 145–152. https://doi.org/10.1002/aqc.2504

Stoddart, M. & Graham, P. (2017). Offshore Oil, Environmental Movements, and the Oil-Tourism Interface: The Old Harry Conflict on Canada's East Coast. *Sociological Inquiry 88(*2), 274-96. https://doi.org/10.1111/soin.12192

Stoddart, M. & Quinn Burt, B. (2020). Energy justice and offshore oil: weighing environmental risk and privilege in the North Atlantic. *Environmental Sociology*. doi:10.1080/23251042.2020.1782026

Stolton, S., Shadie, P. & Dudley, N. (2013). *IUCN WCPA Best Practice Guidance on Recognising Protected Areas and Assigning Management Categories and Governance Types*. Best Practice Protected Area Guidelines Series No. 21. IUCN: Gland, Switzerland.

Sylliboy, B., Marshall, T., Martin, T., Dennis, C., Matthews, K., White, W., Rice, K., Annand, C., Tremblay, J., Wildsmith, B., Clark, D. B., Christmas, D., Christmas, K., Hunka, R. & Beals, B. (1993). *Mi'kmaq Fisheries, Netukulimk: Towards a Better Understanding*. Truro: Native Council of Nova Scotia.

Trudeau, J. (2019, Dec 13). Minister of Fisheries, Oceans and the Canadian Coast Guard Mandate Letter. Retrieved from https://pm.gc.ca/en/mandate-letters/2019/12/13/minister-fisheries-oceans-and-canadian-coast-guard-mandate-letter

United Kingdom Oil and Gas Authority (n.d.). "What we do." Retrieved from https://www.ogauthority.co.uk/about-us/what-we-do/

US Energy Information Administration. (2016). "Offshore oil production in deep water and ultradeep water is increasing." Retrieved from https://www.eia.gov/todayinenergy/detail.php?id=28552

VanderZwaag, D. L. and Macnab, P. (2009). Marine Protected Areas: Legal framework for the Gully off the coast of Nova Scotia (Canada). Retrieved from https://www.iucn.org/downloads/the_gully.pdf

Venegas-Li, R., Levin, N., Morales- Barquero, L., Kaschner, K., Garilao, C., & Kark, S. (2019). Global assessment of marine biodiversity potentially threatened by offshore hydrocarbon activities. *Global Change Biology, 25*(6), 2009- 2020. https://doi-org.ezproxy.library.yorku.ca/10.1111/gcb.14616

Walton, V. (2019, Dec 7). "Nova Scotian seafood products worth almost $3 billion on international market." *Halifax Today*. Retrieved from https://www.halifaxtoday.ca/local-news/nova-scotian-seafood-products-worth-almost-3-billion-on-international-market-1947893

Watson, M. S. & Hewson, S. M. (2018). Securing protection standards for Canada's marine protected areas. *Marine Policy, 95*, 117-122. https://doi.org/10.1016/j.marpol.2018.07.002

Wilt, J. (2017, Jul 22). "Industry sways feds to allow offshore drilling in Laurentian Channel Marine Protected Area." *The Narwhal*. Retrieved from https://thenarwhal.ca/industry-sways-feds-allow-offshore-drilling-laurentian-channel-marine-protected-area/

Withers, P. (2019, Jan 29). “DFO tries to allay fishermen’s fears that protected area would impact livelihood.” *CBC News*. Retrieved from https://www.cbc.ca/news/canada/nova-scotia/no-mpa-here-signs-eastern-shore-1.4996534

Yates, K. L. (2018). “Meaningful stakeholder participation in marine spatial planning with offshore energy,” In Katherine L. Yates & Corey Bradshaw (Eds.), *Offshore Energy and Marine Spatial Planning* (pp. 169-188). Oxon: Routledge.

Yates, K. L., Polsenberg, J., Kafas, A., and Bradshaw, C. (2018). “Introduction: Marine spatial planning in the age of offshore energy,” In Katherine L. Yates & Corey Bradshaw (Eds.), *Offshore Energy and Marine Spatial Planning* (pp. 1 - 5). Oxon: Routledge.

Zelinsky, T. (Producer). (2019, Nov 29). Why offshore oil and natural gas has a future in Nova Scotia [Audio podcast]. Retrieved from https://context.capp.ca/interviews/2019/podcast_november_2019_stuart-pinks-on-nova-scotia-offshore

Zurba, M., Beazley, K., English, E., and Buchmann- Duck, J. (2019). Indigenous Protected and Conserved Areas (IPCAs), Aichi Target 11 and Canada’s Pathway to Target 1: Focusing Conservation on Reconciliation. https://www.iccaconsortium.org/index.php/2019/02/25/indigenous-protected-and-conserved-areas-ipcas-aichi-target-11-and-canadas-pathway-to-target-1-focusing-conservation-on-reconciliation

Table 1. Marine Protected Area network sites in the Scotian shelf bioregion.[3]

The Scotian shelf bioregion has a range of marine conservation areas managed by different federal departments and legislations.

Name	Type of protected area	Federal department	Legislation
Corsair and Georges Canyons Conservation Area	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
Emerald Basin and Sambro Bank Sponge Conservation Areas	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
Jordan Basin Conservation Area	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
Lophelia Coral Conservation Area	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
Western/Emerald Banks Conservation Area	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
Northeast Channel Coral Conservation Area	Marine Refuge	Fisheries and Oceans Canada	Fisheries Act
St Ann's Bank	Marine Protected Area	Fisheries and Oceans Canada	Oceans Act
The Gully	Marine Protected Area	Fisheries and Oceans Canada	Oceans Act
Musquash Estuary	Marine Protected Area	Fisheries and Oceans Canada	Oceans Act
Machias Seal Island Migratory Bird Sanctuary	Migratory Bird Sanctuary	Environment and Climate Change Canada	Canada Wildlife Act
Port Joli Migratory Bird Sanctuary	Migratory Bird Sanctuary	Environment and Climate Change Canada	Canada Wildlife Act
Port Hebert Migratory Bird Sanctuary	Migratory Bird Sanctuary	Environment and Climate Change Canada	Canada Wildlife Act
Sable River Migratory Bird Sanctuary	Migratory Bird Sanctuary	Environment and Climate Change Canada	Canada Wildlife Act
Grand Manan Migratory Bird Sanctuary	Migratory Bird Sanctuary	Environment and Climate Change Canada	Canada Wildlife Act
Sand Pond National Wildlife Area	National Wildlife Area	Environment and Climate Change Canada	Canada Wildlife Act
Boot Island National Wildlife Area	National Wildlife Area	Environment and Climate Change Canada	Canada Wildlife Act
John Lusby Marsh National Wildlife Area	National Wildlife Area	Environment and Climate Change Canada	Canada Wildlife Act

[3] The Scotian shelf bioregion is also home to Sable Island National Park Reserve (managed by Parks Canada under the *Canada National Parks Act)* but it is not technically part of the regional MPA network.

Table 2. Call for bids near Marine Protected Areas (and OECMS)[4]

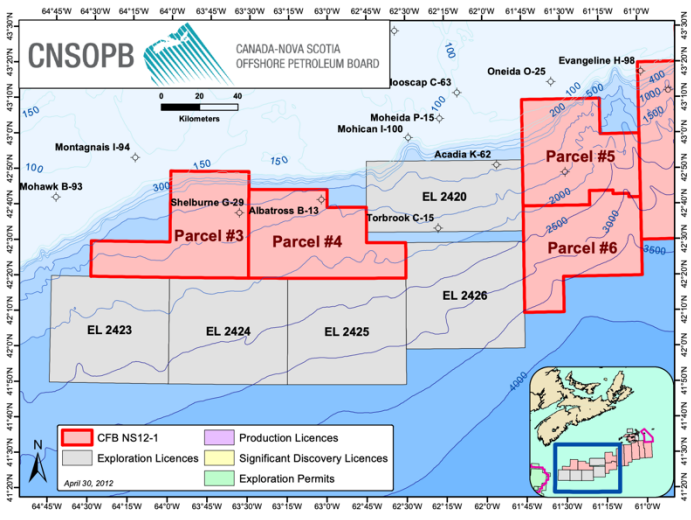
A number of call for bids have been close to MPA boundaries in offshore NS and nearly all of them resulted in no bid rounds.[5]

Call for Bids	Year	Adjacent to MPA	Result
NS17-1	2017	St Anne's Bank	No bids received
NS16-1	2016	The Gully	No bids received
NS14-1	2014	The Gully	No bids received
NS13-1	2013	The Gully	No bids received
NS12-1	2012	The Gully	No bids received
NS03-1	2003	The Gully (when it was an AOI)	Exploration license

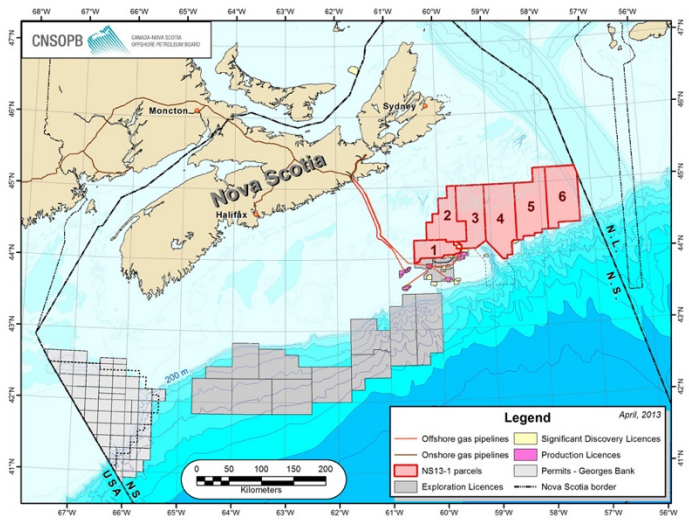
[4] Followed-up with the C-NSOPB in July 2020 to disclose call for bids within or near OECMs such as marine refuges.
[5] Licenses have been issued near Sable Island since the 1980s and are in C-NSOPB archives.

Figure 1. Call for bids maps shared with industry and the public between 2012-2018.[6]

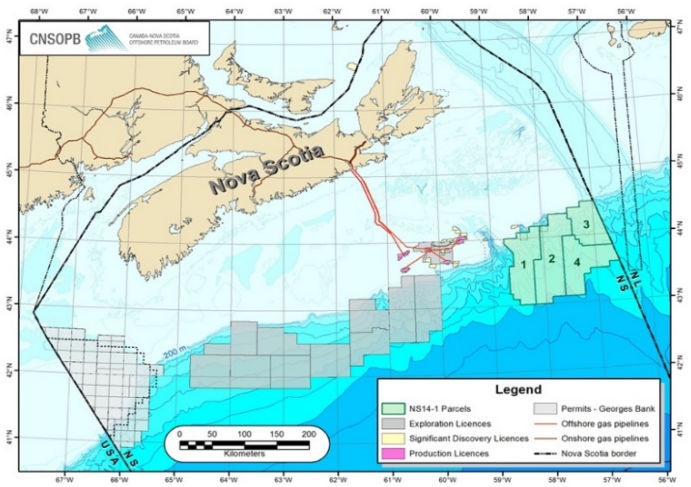
These maps are developed and shared by the C-NSOPB with industry and the public to highlight licenses available for offshore oil and gas activities. Maps begin to highlight protected areas 2016 onwards but are missing a wide range of protected areas offshore (C-NSOPB, "Call for bids," n.d.).



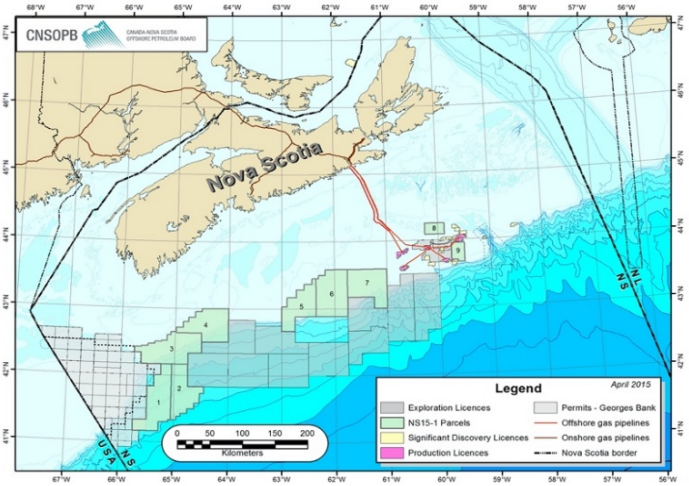
2012



2013

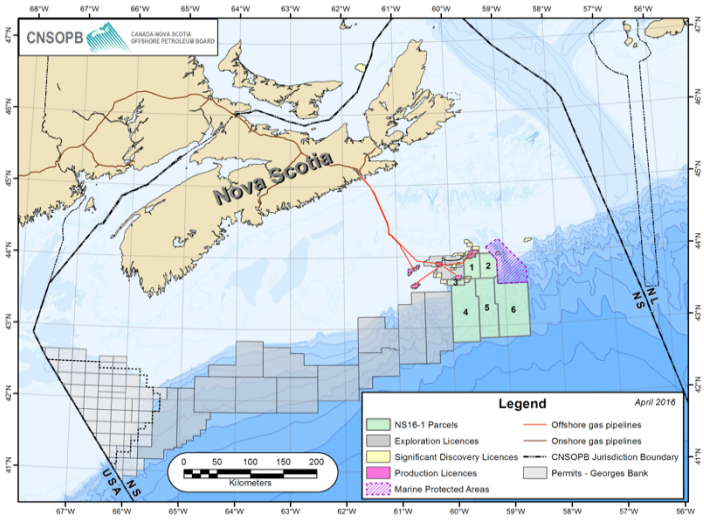


2014

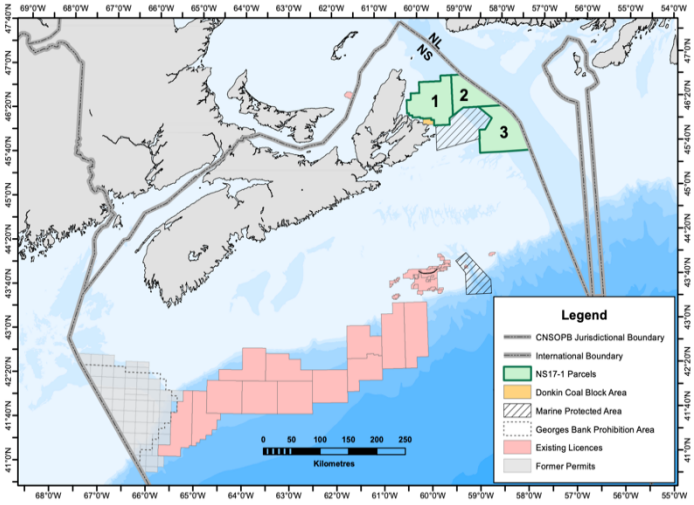


2015

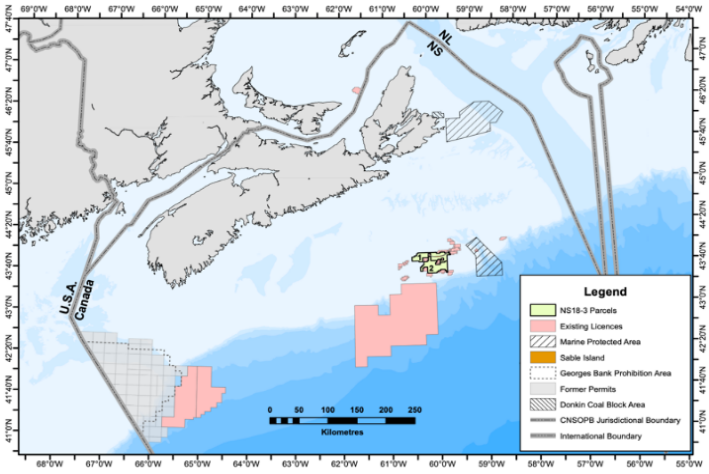
[6] There has been no call for bids since the results of the 2018 bid round were announced in 2019.



2016



2017



2018

Paper 2[7] – Not So Strategic? Actors Divided Over Utility of Strategic Environmental Assessments for Offshore Petroleum Development in Nova Scotia, Canada

Anuja Kapoor

Key Words: Offshore oil and gas, strategic environmental assessment, public participation, Nova Scotia, Canada

Abstract

The Canada-Nova Scotia Offshore Petroleum Board uses Strategic Environmental Assessments (SEAs) as a best practice to scope the environmental, social and economic concerns of offshore oil and gas activities early on in decision-making, to achieve more sustainable outcomes. Between 2012- 2020, eight offshore areas were studied using SEAs, including the Eastern Scotian Shelf and Slope, Middle and Sable Island Banks and Sydney Basin and Orpheus Graben areas. An examination of stakeholder participation in the process and interviews with 25 strategic actors reveals that stakeholders are divided over the effectiveness of a sector specific SEA for environmental regulation.

[7] In partial format of the *Journal of Environmental Assessment Policy and Management* requirements, 6000-word limit.

Introduction

Strategic Environmental Assessments (SEAs) are undertaken in more than 60 countries to consider the environmental impacts of proposed policies, plans and programs across diverse sectors and geographical areas. Fostering sustainability has long been a rationale for this tool—situating environmental considerations at the outset of decision-making (Tetlow and Hanusch, 2012; Fidler and Noble, 2012; Lamorgese et al., 2015). These assessments are meant to detect environmental sensitivities at an early stage, before projects are proposed, designed or implemented. The benefits of early environmental thinking are meant to cascade downstream, and result in more informed, targeted and efficient project decisions by the time an Environmental Assessment (EA) is required and narrower in scope (Partidário, 2000; Fidler and Noble, 2012; Noble et al., 2013). Other long-term benefits include organizational learning, greater environmental awareness among actors and participatory processes that facilitate dialogue and transparency (Tetlow and Hanusch, 2012).

As research on SEAs has grown (Therivel and Partidário, 1996; Tetlow and Hanusch, 2012), scholars generally recognize its benefits in theory and shortcomings in practice (Noble et al., 2013; Rega and Baldizzone, 2015). For instance, in theory, effective SEA depends on meaningful public participation (Rega and Baldizzone, 2015). Not only does public involvement at a strategic level improve the quality and credibility of environmental decisions (Vespa et al., 2017) it results in greater acceptance of outputs (Rega and Baldizzone, 2015; Udofia et al., 2016). Direct representation of the needs and interests of diverse stakeholders is also important to allocate long-term benefits of projects fairly (Lamorgese et al., 2015). But whether SEAs live up to their theoretical benefits in practice is still up for debate (Fidler and Noble, 2012). SEA practitioners and scholars have found limited influence of public participation on outcomes (Rega and Baldizzone, 2015). Another drawback is that their role in decision making remains weak, informal and poorly understood (Noble, 2009). Though SEAs are meant to complement and support lower-tiered assessments, there is often skepticism around their usefulness. Few studies have empirically assessed SEA effectiveness—even as early as a decade ago, Jay (2010) noted that empirical research on SEAs was relatively scant.

This study contributes to the practice and evolution of SEA in Canada by evaluating the process, strengths and shortcomings of a sector-specific SEA used to anticipate and mitigate the adverse environmental impacts of offshore oil and gas activities in Nova Scotia (NS). To begin, SEAs in Canada are diverse in their scope and function, used across sectors and applied at various levels of strategic planning (Noble, 2009; Noble et al., 2013) as a "systematic and comprehensive process of evaluating the environmental effects of a policy, plan or program and its alternatives." They are administered through a federal cabinet directive since 1990 (Impact Assessment Agency of Canada, 2016) unlike project specific

EAs under the more stringent *Impact Assessment Act* (2019). SEAs for offshore petroleum activities, in particular, have been conducted in a number of Canadian ocean regions and studied. In the Arctic, Noble et al. (2013) and Doelle et al. (2013) identified opportunities for SEA to coordinate offshore planning, improve local engagement and establish greater clarity among stakeholders in the Beaufort Sea region, but industry and government remain skeptical about embarking on unchartered territory. A SEA for offshore oil and gas activities in Baffin Bay and Davis Strait was also completed in 2019, following two years of extensive consultation and information gathering with northern communities (Nunavut Impact Review Board, 2018). Despite the much-needed progress on the sector-specific SEA in the north, SEA for offshore oil and gas activities in Newfoundland and Labrador (NL) are most widely studied (Fidler and Noble, 2012; Noble et al., 2013; Cycyota, 2014; Vespa et al., 2017; Fusco, 2020; Carter, 2020, in press). In NL, the issuance of rights is the major intent of SEAs but empirical evidence erodes the credibility of the assessment as stakeholder participation is low, they distrust the process, and there is little evidence of direct impacts or effectiveness long-term (Fidler and Noble, 2012; Noble et al., 2013; Vespa et al., 2017; Fusco, 2020).

This research seeks to positively contribute to SEA practice in Canada through an empirical study in a region that receives less attention. Mirroring the regulatory framework in NL, SEAs are undertaken in NS at a program level to identify environmental sensitivities in areas of the ocean that are viable for leasing oil and gas activities, which can have far reaching impacts to other marine sectors, habitat and marine wildlife (Fraser, 2014). In this paper, I aim to understand the role of SEAs in NS's offshore oil and gas sector, how stakeholders perceive and understand their function and process, the level of public attention they receive, and if it has an impact on downstream decisions. If SEAs are indeed used to support petroleum development decisions and to protect marine environments, it is worth questioning their reliability. In the sections that follow I present the case study, describe my research methods, and follow with key findings and a discussion.

Case Study: Nova Scotia

NS's offshore petroleum industry has ebbed and flowed, but reliance on extractive resource development has been a persistent characteristic of the region (Clancy, 2011). Because it shares the revenue of offshore oil and gas projects with the federal government, NS has strong financial incentive to expand the sector and boasts rich oil and gas potential to attract industry. Three major projects have produced 45 million barrels of oil and over two trillion cubic feet of natural gas, including Canada's first offshore oil project, Cohasset Panuke (1992–1999), first natural gas project, Exxon's Sable Offshore Energy Project (1999–2018) and Shell's Deep Panuke (2013–2018) (C-NSOPB, "Current activity," n.d.; C-NSOPB, "Legacy production

projects," n.d.). They collectively earned the province $1.9 billion in royalties (Canadian Association of Petroleum Producers, 2018).

But in recent years the offshore has been silent (Gorman, 2018). Despite a lack of significant discoveries (Casey, 2019) local leaders are convinced the industry will make a comeback and are taking a long-term view (Gorman, 2018). The provincial Department of Energy has invested $12 million in an Offshore Growth Strategy to significantly increase geoscientific research and exploration activity by 2022 (Department of Energy and Mines, 2020). So long as this is the case, SEAs will continue to play a role in regulating the environmental impacts of offshore oil and gas activities in the region.

SEAs for offshore licensing

The Canada-Nova Scotia Offshore Petroleum Board (C-NSOPB) is the lifecycle regulator of offshore oil and gas projects. It is an independent, joint federal-provincial authority established to oversee offshore petroleum licensing under the *Canada-Nova Scotia Offshore Petroleum Resources Management Implementation Accord Acts* (1988) (Shrimpton et al., 2003). A main function of the regulator is to award licenses for exploration, significant discovery or production to operators through a competitive bidding process. SEAs are prepared to assist the C-NSOPB before call for bids occur to determine all foreseeable offshore oil and gas exploration activities and potential environmental interactions (Amec Foster Wheeler, 2016) across diverse geographical study areas of the Scotian shelf and slope. The C-NSOPB hardwired SEAs into the land tenure process in 2003, with a policy to prepare a SEA before a bidding process is initiated in a given area and to update it every five years (Shrimpton et al., 2003). The SEA schedule is therefore linked to a call for bids forecast schedule that projects exploration areas of interest three years out. SEA boundaries overlap the entire calls for bids forecast area and include a buffer zone to address environmental effects that may travel (Amec Foster Wheeler, 2016; Stantec 2019).

Consultation processes

Consultation is emphasized and carried out throughout the development of SEAs. The petroleum board's "approach to planning and conducting its SEAs is open and consultative, with various mechanisms and opportunities for relevant organizations and individuals to receive and review information, and as well as to provide information and perspectives that are relevant to the SEA and its scope" (C-NSOPB, 2020, p. 7). Stakeholder consultation early on is emphasized in reports to most effectively mitigate the effects of exploration activities on fisheries and other ocean users. As such, the C-NSOPB and its contractor consult with federal departments, the fishing industry (through a Fisheries Advisory Committee) (C-NSOPB, "FAC

organizations," n.d.), Indigenous communities and local environmental non-governmental organizations (ENGOs) throughout various stages of the process (Stantec, 2013a), starting with scoping to determine environmental issues to be addressed (Jay, 2010).

Scope is typically limited to determining spatial and temporal boundaries of the study area, key characteristics of the environment, and Valued Components (VC) such as species of special status and special areas. Special areas may include Marine Protected Areas (MPAs) or Areas of Interest for designation as an MPA, Other Effective area-based Conservation Measures such as marine refuges, coral and sponge conservation areas, critical habitat for species at risk, and fisheries (C-NSOPB, 2020a). For each VC, the SEA explores potential effects of exploration activities drawing on existing knowledge and current literature, provides mitigation and planning considerations, and discusses data gaps and uncertainties (C-NSOPB, 2020a).

Once scope is determined, a draft SEA report is completed and made available to the public for input on the C-NSOPB website. Indigenous groups, government departments, the FAC and other relevant stakeholders are notified (C-NSOPB, 2020a). Revisions to the draft are made at the regulator's discretion but since 2016 there has been greater accountability as specific comments or concerns were integrated into final reports and addressed individually (Amec Foster Wheeler, 2016; Stantec, 2019). Once the draft comment period is closed, a final report is developed and made available to public comment for 6 weeks. This process was not always open and accessible but the C-NSOPB website was rehauled in 2020 to build stakeholder trust in their consultative processes (C-NSOPB, 2020b).

Conflicts downstream

Despite this process, SEAs may not be fulfilling their purpose in the offshore petroleum sector because opposition to the issuance of rights and project proposals continue to manifest. Nearly 4000 individuals commented on a call for bids near Sable Island National Park Reserve in 2018 (C-NSOPB, 2018a; Bundale, 2019a; Kapoor, 2020). Lease sites made available on or contiguous to Lobster Fishing Area 40 also triggered opposition from an Offshore Alliance of 17 environmental groups and commercial fisheries, who argued it is "the only designated lobster spawning site on the Scotian Shelf" (C-NSOPB, 2018b, p. 28). In 2015, when BP Canada filed an application with the Canadian Impact Assessment Agency to move forward with exploration drilling, Indigenous groups, fisheries and ENGOs were contacted for consultations but alliance members refused to engage (C-NSOPB, 2018b).

Their letter read, "We will not be attending your planned meeting of March 5. At this point, we do not have any reason to believe that the C-NSOPB has any real interest to engage in meaningful dialogue or in responding to any of our concerns. In fact, all past history confirms this reality. This meeting seems to

be an effort of CNSOPB to tick off another box, pretend that consultation has taken place and then to carry out their appointed task of promoting hydrocarbon development on the Scotian Shelf. It is, in fact, for this reason that the "Offshore Alliance" was formed. The CNSOPB functions as an advocate for the oil and gas industry. We believe it is totally unsuited for any role related to environmental protection" (C-NSOPB, 2018b, pp. 28-29). This study builds on these frequent and growing tensions with a view to explore the effectiveness of SEA in NS's offshore petroleum sector.

Methods

This research is part of a qualitative study to understand tensions and trade-offs between marine users where offshore petroleum interests overlap with protected areas in NS (Kapoor, 2020). This paper focuses on SEAs to understand how regulators identify parcels of the ocean floor as possible areas for exploratory drilling and the consultation processes undertaken with stakeholders. First, to develop a broad understanding of SEA in the sector, I reviewed eight SEAs undertaken by the C-NSOPB (accessible through a public registry) between 2012—2020 in the Scotian bioregion (Figure 1). Nineteen distinct stakeholders commented on SEAs during this time frame (Table 1).

This formed the basis of a list of strategic actors in the region, and the list was enlarged via "snowball" sampling (we asked interviewees to recommend other key contacts). In accordance with research ethics processes approved by York University's Human Participant Review Committee, I conducted (and recorded) semi-structured interviews with representatives of key actors. I requested interviews with over 50 individuals; 25 agreed. This led me to carry out two field site visits to Ottawa and NS over the 2019—2020 period and conduct 20 interviews in person. In addition, I conducted four interviews by phone or video call and one interviewee responded to questions in writing. The interviewees included representatives of NS's offshore oil and gas regulator (n=1), relevant federal and provincial departments (n=5), commercial fishers (n=3), local and national ENGOs (n=8), Indigenous communities (n=2) and independent research experts (n=3).

The interview guide (series of standard questions) used for the interviews was designed to provide a detailed understanding of a range of issues: how regulators identify parcels of the ocean floor as possible areas for exploratory drilling; how government establishes and manages marine conservation areas; consultation processes undertaken with stakeholders; tendencies and constraints around conflict-laden decisions where petroleum interests and marine conservation overlap; stakeholder knowledge of and involvement in MSP; and the integration of Indigenous knowledge. Specific to SEAs, I asked interviewees of their experience with or involvement in the process and if they saw a clear link to call for bids processes.

My in-person, phone, and video interviews lasted one hour on average, resulting in a total of 19 hours of interviews.

All the interviews were professionally transcribed. N-Vivo software was used to code and analyze the interviews, to compare and contrast themes across transcripts and by actor group, to inform my understanding of SEAs in the region (Results) and its broader implications (Discussion).

Results

Federal agencies considered SEAs useful for identifying environmental sensitivities, data gaps and room for improvement. SEAs have also increased transparency between the federal government and the petroleum regulator to enhance mitigation measures. But significant barriers to participation exist in SEA for non-governmental actors including fishers, environmental groups and Indigenous communities.

Input from Federal Actors

Fisheries and Oceans Canada (DFO) and Environment and Climate Change Canada (ECCC) engaged in the SEA process through a Memorandum of Understanding with the C-NSOPB (Stantec, 2019). The Department of National Defense commented once, requesting that operators consult with them to ensure project locations and timing have no adverse interactions with military activity (Stantec, 2014a; Stantec, 2014b).

Identifying Sensitivities, Gaps and Improvements

SEAs were used to identify environmental sensitivities and propose mitigative measures. Feedback often pertained to dealing with species of special status, such as the Sowerby's beaked whale under Canada's *Species At Risk Act* (2002) and seabirds under the *Migratory Birds Convention Act* (1994) (DFO 2019a; ECCC, 2012). A participant at DFO said they collaborate with in-house experts to consider the latest knowledge about whales and their reaction to noise and they have "a lot of scientific oversight…on all kinds of species, not just marine mammals."

SEAs were also used to highlight knowledge gaps and uncertainties, such as the seasonal abundance and distribution of marine species or the impact of seismic on them. When reviewing a draft SEA, a DFO participant described their approach: "first of all, is the information contained in the relevant sections complete and accurate and what are the gaps? Then, can we fill those gaps? What new information do we have since the last time?"

A large volume of the feedback from federal actors also referred to edits. DFO noted in their response to the draft Sydney Basin and Orpheus Graben SEA, "One key issue is that the document appears to require significant editing" (DFO, 2016). Statements and entire sections of the draft SEA were highlighted in need of qualification or reference to updated scientific evidence and incorrect terminology (DFO, 2016).

Increasing Transparency and Quality Over Time

Federal participants noted that SEAs have increased transparency and described the process of providing input as one that is predictable and has improved over time. A DFO participant described that they were able to "easily provide expertise and joint monitoring." DFO was involved in scoping[8] SEAs but emphasized, "It is really the Board's EA in the end, and our job is to provide expertise and make sure that they have the proper information to make their decisions."

The participant added, "I don't want to convey that everything's perfect. We've encountered issues for sure…but we've always found that the Board is amenable to modifications to address issues." The participant concluded, "they have been quite a good partner over the years" and they share the priority "to protect the species that are sensitive out there."

Another participant at DFO said that NS has been ground-breaking in terms of working with the Petroleum Board and operators compared to NL. "We've built up a body of mitigation measures that would be considered best practice. Some people might say that the stringency of our mitigation measures may be higher than other parts of the country as well. I think we take that quite happily because we do have a very complex marine environment with lots of species at risk, critical habitat and high-use areas, a fair amount of protected areas and more coming, and a very important and complex fishery... That being said, the level of activity is insignificant compared to what's happening off NL."

The participant concluded, "SEAs have definitely improved over the many years I've been involved…the first SEA from the Offshore Petroleum Board I was involved with was in 1999. It was six pages. Now we're talking about a fairly robust and well-maintained system of SEAs of different ecotypes on the shelf and basin areas and the deeper slope. Does it meet all the things that you'd want a SEA to do? I'm not going to say it does, but I think it's a fairly consistent and well-maintained process."

Input from Non-Governmental Actors

[8] Followed up with the C-NSOPB in July 2020 to understand the scoping process and actors involved.

The World Wildlife Fund of Canada (2019) was the only ENGO to provide feedback on a SEA in the past eight years. Indigenous engagement was low as well. For example, the Middle Scotian Shelf and Slope draft SEA was sent to 17 Indigenous communities of which only one responded (Stantec, 2019). Fishers participated more frequently (the C-NSOPB lists more than 30 fishing organizations that are engaged through the FAC), but a number of participants described the committee as a sham with no real influence on decisions (Kapoor, 2020). Diversity of voices has grown over the years, adding more depth and dimension to SEAs, but there remain significant barriers to participation.

Conflict and Mistrust

A significant tension of non-governmental participants is that SEAs are carried out by the C-NSOPB. "They're completely at a conflict of interest," an ENGO participant explained, because "you can't have the same people promoting and regulating. We don't want them to license and also be responsible for SEAs. Unfortunately, they are our life-cycle regulator and the government decided they should be part of that anyway."

A federal participant lent another perspective. "The reality is the Board operates under the *Accord Acts*. If you take that and say the Board has multiple roles, but first and foremost, it is the regulator, then the fact that it conducts the SEAs, in my mind, is quite appropriate." The C-NSOPB has increased transparency with the public considerably since early years but mistrust in their decisions is growing in some parts of NS, where marine stakeholders perceive an imbalance of power in favour of oil and gas interests at the expense of their own (Kapoor, 2020).

ENGOs and fisheries and Indigenous participants also demand more accountability from the C-NSOPB. "The ocean is a giant toilet for the oil and gas industry, and it can't hold up," a fisher said. "One oil spill there in the spring would just be devastating…If you're going to allow an oil company to come and drill and potentially spill oil on these oceans, we want to know that they can clean it up." The Clean Ocean Action Committee (2019) was formed in 2015 and has grown to 9000 members including vessel owners, captains, crew members, fish plant owners and operators fighting for better environmental regulation.

As for Indigenous engagement, "A SEA does not trigger the Crown's duty to consult because it is does not result in any regulatory action or activity that could potentially impact Aboriginal or Treaty Rights" (Stantec, 2019, p. 9) but the regulator consults Indigenous communities over two 30-day commenting periods. They consider feedback as part of their decision-making process, but a Mi'kmaq participant said, "The Board is a sham. No, they're not consulting properly."

A participant believed that SEAs provide the C-NSOPB "with the cover to do what they're going to do. If it was done right, it would also bring in other industries and stakeholders like us. It's really low

level and not done well…there has to be a wider process if they're serious about protecting the ocean and it's not there." A fisher also criticized consultations undertaken by the C-NSOPB, saying, "you can respond but you're totally ignored anyway. If you don't respond they have a green light and if you do respond they still have a green light…it seems futile." Another fisher echoed, "If it's going to be Petroleum Board led then all that leads to is seismic and drilling, no matter what you say or do."

Lack of Capacity

Non-governmental actors mentioned difficulty in providing input on SEAs because of a lack of capacity. A participant said, "We only have two full time conservation staff in this office…so it just comes down to the capacity to do it." A fisher also mentioned, "I'm a volunteer president of our local. We have a part-time organiser in our area. We can't do much more than that…so we find ourselves engaging in the most threatening situations."

Another ENGO director said, "I don't prioritise that here with minimum staff and resources" because it "often leads to minor changes in big projects." The participant added, "It's very difficult to get people to participate" because stakeholders wonder "does it make a difference?" There's a consultation fatigue…and competing interests for people's time."

Participation in SEAs is particularly challenging for the Mi'kmaq. "Making funding available is really helpful," a Mi'kmaq participant explained, otherwise, "it's very, very hard for us" to consult with oil and gas industry participants or comment on SEAs. The Sipekne'katik First Nation was unable to review a draft SEA for Sydney Basin and Orpheus Graben within the requested timeline and wrote back saying they have capacity issues dealing with consultation requests (Sipekne'katik, 2015). The interviewee added, "if there's something that we don't find is urgent or required, we might say… sorry but we haven't had the proper amount of time or we don't have the capacity to do it."

Despite this, an Indigenous participant suggested that SEAs would highly benefit from Mi'kmaq involvement. EAs assign economic value to certain resources but "with the Mi'kmaq it goes deeper than that," the participant explained. For instance, SEAs pay attention to endangered whales but they do not capture the cultural and spiritual value of whales to the Mi'kmaq. The participant admitted, "it's really tough to evaluate a resource that has sentimental value" but this is the direction in which ecosystem valuation is moving.

Broad and Generic

While capacity is a barrier, an ENGO participant also explained, "to some extent we don't participate because it almost seems to be very generic and too distant." SEAs by design cover large areas

and yet are criticized for being too broad (Noble, 2009). Another environmental spokesperson said their involvement is limited because "it's a couple of steps away" and that "it's basically cut and paste stuff." "Once we see a project on the table then of course we're going to have more comments and concerns depending on where it is, and a SEA just can't capture that."

A DFO participant explained, "No SEA could cover all the different activities that might occur. It would be just so broad that it starts to take away the practical ability of it to do anything. That's why they have project specific EAs." They also believe SEAs are adequate in their role relating to call for bids because, "Calls are just calls. Nothing can happen until a license is issued." At the very least, "SEAs are adequate to make some forecasts and to highlight any major sensitivities to potential developers. It gives them a 10,000-foot level view of the ecosystem."

Whether or not this makes a difference to downstream decisions is unknown. A federal participant said, "it does help scope the project-specific assessments later…so they can be more focused and less voluminous" but an independent research expert disagreed. "SEAs aren't really being used for the purposes that they were intended to be used, which is to direct and streamline and give a more focused and intelligent direction to project based EAs. They tend to be somewhat too general and therefore redundant."

Limited Understanding

Some smaller, volunteer run groups had a limited understanding of SEA function in relation to call for bids. A community activist said, "I can't claim to understand it completely…but it's absolutely needed. There are so few checks and balances that, really, any process that slows things down and requires rigor and science to be brought into the decision making is worthwhile."

Fishers in particular do not see a clear link between SEAs and call for bids. One interviewee said, "It informs [the C-NSOPB] about where sensitive areas are but if they go ahead with the nomination and bidding process in those same areas where they found ecological or biological sensitivity, then what is the point?" The fisher added, "We don't recognise the Petroleum Board in a lot of ways…they have no knowledge of what an acceptable risk for my community is, or for the resources that we depend on."

Discussion

Questions are frequently asked about the purpose of SEA and its role in the planning process because it is a multi-functional tool (Tetlow and Hanusch, 2012). SEAs help the C-NSOPB and the federal government define and develop a baseline of environmental conditions, identify knowledge and data gaps, highlight

issues of concern and make recommendations for mitigation and planning. But not all actors are convinced that SEAs have a strategic utility. Drawbacks of the process are discussed within broader literature.

Stakeholder Engagement

Stakeholder participation in SEAs for offshore petroleum licensing in NS is limited for a number of reasons. Though SEAs are the point of departure for offshore oil and gas leasing decisions, voices tend to amplify at later stages of the regulatory process, around call for bids and project-level decisions, when there is a more immediate threat. An example is when call for bids were announced near two marine refuges which exclude fisheries but permit oil development in NL. Harvesters from the Fish, Food and Allied Workers Union said they must be consulted prior to the call for bids process (CBC News, 2018), but a SEA should have and circumvented these concerns. Noble (2015) encourages stakeholders to get involved early in planning because by the time projects are proposed, it is often too late to consider broader environmental, social and economic factors of the marine environment that may have otherwise been overlooked.

Unfortunately, SEAs are notorious for suffering from the 'participation paradox'. Though greater opportunity for engagement and influence is presented at the strategic tier, there is often less interest in engagement due to the high level and abstract nature of decisions. The process is even more 'out of sight, out of mind' in an offshore setting where biophysical impacts are geographically removed from the public sphere (Fidler and Noble, 2012; Cycyota, 2014). Document analysis and interviews with stakeholders in NL revealed that the offshore context greatly affects public participation (Cycyota, 2014). Moreover, Vespa et al. (2017) study of a SEA for offshore oil and gas in NL demonstrated that where public participation has occurred it has not been meaningful. Consultations in the region have been criticized of being tokenistic (Fidler and Noble, 2012; Fusco, 2020) and experience shows that this is unlikely to lead to sustainable outcomes (Ehler et al., 2019).

Ultimately, marine management is complex as it is confronted with problems that are inherently wicked. Since there is no right or wrong solution that can be determined scientifically, wicked problems are best resolved when stakeholders collectively deliberate on appropriate management tools (Jentoft and Chuenpagdee, 2008). For the process to be truly collaborative, it must bring together multiple perspectives. Only then is it possible to achieve rational, well-informed, democratic decisions (Innes & Booher, 2010; Morf et al., 2019). This is a theoretical underpinning in planning literature as well and a precursor to building consensus, trust and transparency over time (Healey, 1997). Good participation practices give stakeholders opportunities to meaningfully and actively deliberate throughout SEA processes with access to all relevant information (Lamorgese et al., 2015; Ozoike-Dennis et al., 2019).

Under-represented and marginalised groups must be prioritized (Gauthier et al., 2011) to enhance the environmental performance of all plans, policies and programs (Rega and Baldizzone, 2015). Low interest and participation from the Mi'kmaq are not surprising given that communities are often overburdened and Aboriginal participation in Canadian EA has been fraught with mistrust (Udofia et al., 2016). Udofia et al. (2016), however, encourage earlier Aboriginal participation in SEAs to exert more influence and carve room for participation further down the line. Inuvialuit participants in Noble et al. (2013) study in the Beaufort Sea also felt that early engagement with industry would help discuss certain topics head on, like the local economic benefits they derive.

But opening up the SEA process to public participation has constraints, which is why the theoretical and practical aspects of public participation in SEA remain research priorities (Gauthier et al., 2011; Rega and Baldizzone, 2015). Literature on novel forms of stakeholder participation encourage a combination of top-down and bottom-up approaches to move from informing to empowering stakeholders (Yates, 2018). Consultations for SEA in NS include formal approaches such as public hearings, presentations and comment periods, and offer varying degrees of power sharing, interaction and inclusiveness (Morf et al., 2019). Arnstein's stakeholder engagement ladder makes basic distinctions among non-participation (no power), tokenism (being informed or consulted but without influence) and citizen power (influence through meaningful partnership) (Morf et al., 2019). Shrimpton et al. (2003) highlight that informal exchange is as important as formal requirements.

In the end, a participant said, "SEAs are not living up to the S of the name. If their goal is to actually help a collective, deliberative process that is in some sense democratic, that is to say– brings in every consideration of those who potentially have an interest? Then they are certainly limited." Even at the federal level there may be players missing. Transport Canada is notably absent in SEAs for offshore oil and gas even though it is a key player in addressing marine safety and environmental response in the framework and design of Canada's billion-dollar Oceans Protection Plan (Transport Canada, 2020).

Socio-Economic and Cumulative Effects

SEAs provide an opportunity to integrate socio-economic considerations early in the planning of offshore oil and gas systems (Fidler and Noble, 2012; Lamorgese et al., 2015) but a fisher suggested "there's been a resistance to including things like socio-economic impacts in SEAs. They tend to be highly concentrated on biophysical metrics." The participant explained that without accounting for socio-economic impacts, SEAs are not even close to capturing the complete picture; they are unable "to map the relationship between people and place." Determining acceptable level of public risk associated with the offshore hydrocarbon development is meant to prepare communities for potential onshore socio-economic

impacts (Fidler and Noble, 2012). But Fidler and Noble (2012) argue that, "the onshore impacts of offshore development, specifically the onshore geography of benefits and risks, is largely absent from offshore SEA systems" (p. 18). Under directives, particularly, SEAs in Atlantic Canada do not need to pay a great deal of attention to socioeconomic and cumulative effects assessment (Fidler and Noble, 2012; Vespa et al., 2017). Nationally, Elvin and Fraser (2012) have stressed general inaction of energy-dependent governments on cumulative environmental effects assessment, while Carter et al. (2017) found that even where cumulative effects are mainly addressed through SEAs, they lack rigor especially due to data gaps or where they download the responsibility to project specific EAs.

There is a recognized need for SEA offshore to adopt a broader approach to socio-economic and cumulative effects assessment that contribute to the wellbeing of coastal communities (Fidler and Noble, 2012). An academic interviewee said socio-economic analysis is sorely lacking. "It seems to be something that is rarely said by official channels, that there really is a difference between royalties generated by offshore oil and gas and royalties and wealth that's generated by more circular based economies like inshore fishing where money literally cycles back into the community in a more direct way." Compared to SEA processes in Norway and the UK, Shrimpton et al. (2003) also found that the range of issues considered in the Atlantic Canada SEAs is limited, focusing on the environmental effects of oil and gas activities on specifically-identified VCs which are for the most part species of fish, birds, marine mammals and other ecosystem components. They still do not consider broader issues of sustainable development, socio-economic and cumulative effects of the proposed activities (Shrimpton et al., 2003).

Regulating the Environment

NS's offshore marine areas have also become a subject of critical debate in recent years with vocal opposition to offshore oil and gas and other frequent tensions accompanying the expansion of protected area networks that limit industrial activity. These tensions are rooted in a growing mistrust of the C-NSOPB as a reliable and independent regulator of the environment as stakeholders perceive it to be a pro-development body (Kapoor, 2020). An ENGO participant suggested an independent review panel is needed for SEAs to introduce, "some legitimacy that puts it at arm's lengths from the petroleum board but even from government agencies." An audit of Atlantic Canada's petroleum boards highlighted the need to strengthen environmental mitigation measures and monitoring (Office of the Auditor General of Canada, 2012), while Fraser and Carter (2019) proposed the establishment of a new independent environmental authority in the region.

Carter et al. (2017) argue as well that resource extractive governments are far more deferential to industry and likely to downplay environmental protection for short-term economic gain. During the Harper-

era, Canada experienced a streamlining of environmental policy and one notable move has been the consolidation of authority for environmental regulation in development-oriented agencies. Government retreat from environmental regulation is effectively achieved through this "one window" approach to speed up project approvals, reduce inefficiencies, and centralize environmental protection policy (Carter et al., 2017). The SEA process, because of this, appears more oriented toward advancing oil and gas activities than reflecting on environmental and social implications (Lamorgese et al., 2015).

Because of these constraints, SEAs appear to be nothing more than an information gathering and approval process before companies bid on parcels of the ocean floor (Fusco, 2020). An academic participant suggested that indeed SEAs may be carried out to save the oil industry time and money. "It makes sense that if the Board is nominating an area that is potentially of exploration interest, one of the ways to attract industry is to have a SEA in place so that they can begin their work without having to do that themselves at their own cost and their own time delay." If this is the case, this sector-specific SEA is more of a planning tool for companies who receive general approval for oil-related activities in an area; the SEA simply creates a more certain, predictable, and stable context to make development decisions (Fusco, 2020). As long as they are sector driven, SEAs will be conducive to the development agenda but not necessarily environmental protection.

Sector Constraints

SEAs for offshore oil and gas in NL have been type casted as different in scope and function to other SEAs carried out under Canada's federal cabinet directive. For the same reasons, SEAs in NS also do not fit "the pure SEA definition." They are undertaken by an oil and gas regulator that has a narrow mandate to make decisions on the issuance of licences rather than consider broader policy options and offshore energy development trajectories (Fidler and Noble, 2012). Sector-specific SEAs are inherently restrictive, which makes it impossible to consider alternatives in NS. This was a noted deficiency in NL as well, which observed little evidence of tiering and downstream influence, suggesting even more that the mandate of SEAs may simply be too narrow in offshore Atlantic Canada to provide broad influence and benefits expected of it (Fidler and Noble, 2012; Vespa et al., 2017).

International experiences suggest that SEA administered strictly for petroleum licensing actually challenges effective delivery of the assessment (Fidler and Noble, 2012). SEAs that are sector-specific contribute to legitimizing exploration projects that are proposed, approved and conducted by industry. Fusco (2020) argues that if activities are negative or disruptive, it is reasonable to assume that licenses may be withheld in some areas. Yet restricting licensing has never been the result of a SEA process in the NL region since SEAs were introduced in 2003 (Fusco, 2020). The assumption that development will proceed

precludes the ability to consider alternatives (Fusco, 2020), which is why questions regarding other types of energy and long-term benefits remain unanswered through this specific tool (Vespa et al., 2017). Decision-makers are encouraged to adopt new ways of thinking and embrace institutional change based on collaborative decision-making on resource development priorities (Udofia et al., 2016).

Looking Ahead

Broader trends in NS's petroleum sector suggest it may be losing its image as an offshore frontier (Bundale, 2019b; Casey, 2019). This may be an opportunity to reimagine traditional uses of the ocean space. Fisheries and petroleum are expected to face pressures that restrict their particular sea space under the banner of blue growth—a $950 million-dollar investment to build an Ocean Supercluster in Atlantic Canada is a testament to this trend (Government of Canada, 2018). While SEAs are a static snapshot and inadequate at dealing with multiple concepts of space and associated actors given their sector-specific purpose in NS, MSP is dynamic in nature. Recognizing how SEAs fall short of their full potential is an opportunity to adopt a more holistic approach to sustainably manage ocean resources and the livelihoods tied to them (Noble, 2009). Most importantly, actors must move forward with the philosophy that "planning processes are also learning processes" (Ehler et al., 2019, p. 13).

A new process of marine spatial planning (MSP) in the region has the potential to address the broader challenges presented in this study and practitioners continue to advance arguments to ditch sector-based policy tools when it comes to marine management (Douvere, 2008; Ehler et al., 2019). MSP has matured from a concept to a practical approach in the past two decades to achieve more sustainable outcomes (Ehler et al., 2019; Twomey and O'Mahony, 2019; Morf et al., 2019). By 2030, a third of the surface area of the world's exclusive economic zones will have government-approved marine spatial plans (Ehler et al., 2019) to guide sectoral management and achieve multiple objectives (Yates et al., 2018). DFO too is advancing MSP across Canada's ocean regions (DFO, 2019b) and aims to design and implement a marine spatial plan in the Scotian shelf by 2024. It has been a data gathering exercise so far that has engaged high level actors in government and has not opened to the public. Most of our interviewees understood the concept of MSP but had reservations about how it might look in practice.

Similar to SEAs, stakeholders are the heart of MSP and can help achieve long-term optimal plans (Yates, 2018; Yates et al., 2018). Engagement with local communities can allow spatial plans to be diverse as they incorporate local dependencies, expert and non-expert input (Yates, 2018). Getting involved enables coastal communities with economic and cultural ties to the marine environment, their practices, histories and local knowledge to become visible. Decision-makers are not the only ones who gain from this improved

understanding. Different stakeholders can also develop a greater appreciation of each other's needs and priorities through the process (Yates, 2018).

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References

Amec Foster Wheeler. (2016). Strategic Environmental Assessment Sydney Basin and Orpheus Graben Offshore Cape Breton, Nova Scotia. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/75345.8_sea_sydney_basin_and_orpheus_graben_offshore_cape_breton_final.pdf

Bundale, B. (2019a, Sep 4). "Federal plan for Sable island will protect ecosystem but won't tighten offshore oil and gas restrictions." *The Guardian*. Retrieved from https://www.theguardian.pe.ca/news/provincial/federal-plan-for-sable-island-will-protect-ecosystem-but-wont-tighten-offshore-oil-and-gas-restrictions-348596/

Bundale, B. (2019b, Jan 15). "BP scales back exploration plans off N.S., gives up half its offshore area." *BNN Bloomberg*. Retrieved from https://www.bnnbloomberg.ca/bp-scales-back-exploration-plans-off-n-s-gives-up-half-its-offshore-area-1.1198803

Canadian Association of Petroleum Producers. (2018). "Canada's Offshore Oil and Natural Gas in Nova Scotia." Retrieved from https://www.capp.ca/wp-content/uploads/2019/11/Canada%E2%80%99s_Offshore_Oil_and_Natural_Gas_Industry_in_Nova_Scoti-322613.pdf

Canada- Nova Scotia Offshore Petroleum Resources Accord Implementation Act (Accord Acts). (1988). Retrieved from https://laws-lois.justice.gc.ca/PDF/C-7.8.pdf

Carter, A. V., Fraser, G. S. & Zalik, A. (2017). Environmental policy convergence in Canada's fossil fuel provinces? Regulatory streamlining, impediments, and drift. *Canadian Public Policy, (43)*1, 61-76. doi:10.3138/cpp.2016-041

Casey, Q. (2019, Jan 16). "Nova Scotia offshore goes silent; Newfoundland ramping up." The Telegram. Retrieved from https://www.thetelegram.com/business/nova-scotia-offshore-goes-silent-newfoundland-ramping-up-275621/

CBC News. (2018, Apr 6). "'Protected' area open to oil, gas exploration." Retrieved from https://www.cbc.ca/news/canada/newfoundland-labrador/cnlopb-oil-exploration-wwf-ffaw-1.4608502

Clean Ocean Action Committee. (2019, Feb 6). Re: DFO intentions for "Marine Protected Areas" and "Marine Refuge Areas" as related to the exploration and extraction of oil and gas reserves. [Letter].

C-NSOPB. (n.d.). "Public registry: SEAs." Retrieved from https://www.cnsopb.ns.ca/what-we-do/environmental-protection/environmental-assessments/public-registry-seas

C-NSOPB. (n.d.). "Current activity." Retrieved from https://www.cnsopb.ns.ca/offshore-activity/current-activit

C-NSOPB. (n.d.). "FAC organizations." Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/fac_organizations.pdf

C-NSOPB. (n.d.). "Legacy production projects." Retrieved from https://www.cnsopb.ns.ca/offshore-activity//legacy-production-projects/cohasset-panuke

C-NSOPB. (2018a). "Call for Bids NS18-3: Written comments summary." Retrieved from https://callforbids.ca/written-comments

C-NSOPB. (2018b). BP Canada Energy Group- Application for an Operations Authorization Drilling: Stakeholder Engagement and Aboriginal Consultation Report. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/5.0_-_item_5_-_bp_stakeholder_and_aboriginal_engagement_report.pdf

C-NSOPB. (2020a). Strategic Environmental Assessment Western Scotian Shelf and Slope- Scoping Document. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/sea_scoping_document_january_26_2020_0.pdf

C-NSOPB. (2020b). "New Year. New Website" [Blog]. Retrieved from https://www.cnsopb.ns.ca/news/new-year-new-website

Clancy, P. (2011). *Offshore Petroleum Politics: Regulation and risk in the Scotian Basin*. Vancouver: UBC Press.

Cycyota, T. (2014). Out of sight, out of mind? Public participation in Strategic Environmental Assessment for offshore oil and gas development in Atlantic Canada. [Unpublished master's thesis]. Lund University.

Department of Energy and Mines, Nova Scotia. (2020). Budget 2020–21: Business Plan. Retrieved from https://beta.novascotia.ca/sites/default/files/documents/1-2306/business-plan-2020-21-department-energy-and-mines-en.pdf

Doelle, M., Bankes, N. & Porta, L. (2013). Using Strategic Environmental Assessments to Guide Oil and Gas Exploration Decisions: Applying Lessons Learned from Atlantic Canada to the Beaufort Sea. *Review of European, Comparative and International Environmental Law, 22*(1), 103-116. https://doi.org/10.1111/reel.12018

Douvere, F. (2008). The importance of marine spatial planning in advancing ecosystem-based sea use management. Marine Policy, 32(5), 762–771. https://doi.org/10.1016/j.marpol.2008.03.021

Ehler C., Zaucha J. & Gee K. (2019). Maritime/Marine Spatial Planning at the Interface of Research and Practice. In: Zaucha J., Gee K. (Eds.) *Maritime Spatial Planning* (pp. 1-21). Cham: Palgrave Macmillan.

Elvin, S. & Fraser, G. (2012). Advancing a national strategic environmental assessment for the Canadian offshore oil and gas industry with special emphasis on cumulative effects. *Journal of Environmental Assessment Policy and Management,* 14(3), 1-37. https://doi.org/10.1142/S1464333212500159

Environment and Climate Change Canada. (2012). RE: Draft Strategic Environmental Assessments (SEAs) for the Eastern Scotian Shelf and Slope – Middle and Sable Islands Banks (Phase 1A and 1B). Retrieved from https://www.cnsopb.ns.ca/public-registry-sea/file-no-753457

Fidler, C. & Noble, B. (2012). Advancing strategic environmental assessment in the offshore oil and gas sector: Lessons from Norway, Canada, and the United Kingdom. Environmental Impact Assessment Review, 34, 12-21. doi:10.1016/j.eiar.2011.11.004

Fisheries and Oceans Canada (DFO). (2016, Jan 15). RE: DFO Maritimes Region Comments on the Canada-Nova Scotia Offshore Petroleum Board Draft Strategic Environmental Assessment Report for the Sydney Basin and Orpheus Graben Areas [Letter]. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/sea_letter_and_comments_jan_2016.pdf

DFO. (2019a, Apr 23). Subject: Middle Scotian Shelf and Slope Strategic Environmental Assessment – Draft report – March 2019 [Letter]. https://www.cnsopb.ns.ca/sites/default/files/resource/draft_middle_scotian_sea_-_dfo_comments_-_final.pdf

DFO. (2019b). National Advisory Panel on Marine Protected Area standards. Retrieved from https://www.dfo-mpo.gc.ca/oceans/conservation/advisorypanel-comiteconseil/index-eng.html

Fraser, G. S. (2014). Offshore oil and gas development impacts on marine wildlife resources. In J. E. Gates, D. L. Trauger, and B. Czech (Eds.) *Peak Oil, Economic Growth, and Wildlife Conservation*. New York: Springer.

Fraser, G. & Carter, A. (2019, Jan 10). Re: Recommendation to Establish an Independent Environmental Authority for Newfoundland and Labrador's Offshore Oil and Gas Sector [Letter].

Fusco, L. (2020). Crude regulation: environmental assessments and the Newfoundland and Labrador offshore oil industry [Unpublished PhD dissertation]. University of Waterloo.

Gauthier, M., Simard, L., & Waaube, J. (2011). Public participation in strategic environmental assessment (SEA): Critical review and the Quebec (Canada) approach. *Environmental Impact Assessment Review, 31*(1), 48-60. https://doi.org/10.1016/j.eiar.2010.01.006

Gorman, M. (2018, Nov 17). "Energy minister undeterred as offshore drilling dries up." *CBC News*. Retrieved from https://www.cbc.ca/news/canada/nova-scotia/offshore-drilling-bp-shell-petroleum-natural-resources-1.4910327

Government of Canada. (2018, Feb 15). Government of Canada's new innovative program expected to create tens of thousands of middle-class jobs [News release]. Retrieved from https://www.canada.ca/en/innovation-science-economic-development/news/2018/02/government_of_canadasnewinnovationprogramexpectedtocreatetensoft.html

Impact Assessment Agency of Canada. (2016). "The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals." Retrieved from https://www.canada.ca/en/impact-assessment-agency/programs/strategic-environmental-assessment/cabinet-directive-environmental-assessment-policy-plan-program-proposals.html

Impact Assessment Act. (2019). Retrieved from https://laws-lois.justice.gc.ca/eng/acts/I-2.75/

Jentoft, S. & Chuenpagdee, R. (2008). Fisheries and coastal governance as a wicked problem. *Marine Policy, 33*(4), 553-560. https://doi.org/10.1016/j.marpol.2008.12.002

Healey, P. (1997). *Collaborative Planning: Shaping Places in Fragmented Societies*. London: Macmillan.

Innes, J. E. & Booher, D. E. (2010). *Planning with Complexity: An introduction to collaborative rationality for public policy*. New York: Routledge.

Jay, S. (2010). Strategic environmental assessment for energy production. *Energy Policy, 38*, 3489-3497. doi:10.1016/j.enpol.2010.02.022

Kapoor, A. (2020). Where offshore petroleum licenses and marine protected areas overlap: conflicts and case studies in Nova Scotia, Canada. [Unpublished master's thesis]. York University.

Lamorgese, L., Geneletti, D. & Partidário, M. R. (2015). Reviewing Strategic Environmental Assessment Practice in the Oil and Gas Sector. *Journal of Environmental Assessment Policy and Management, 17*(2). https://doi.org/10.1142/S1464333215500179

Migratory Birds Convention Act. (1994). Retrieved from https://laws.justice.gc.ca/eng/acts/M-7.01/

Morf A., Kull M., Piwowarczyk J. & Gee K. (2019). "Towards a Ladder of Marine/Maritime Spatial Planning Participation," In Zaucha, J. & Gee, K. (Eds.) *Maritime Spatial Planning*. Cham: Palgrave Macmillan.

Noble, B. F. (2009). Promise and dismay: The state of strategic environmental assessment systems and practices in Canada. *Environmental Impact Assessment Review, 29*(1), 66-75. doi:10.1016/j.eiar.2008.05.004

Noble, B., Ketilson, S., Aitken, A. & Poelzer, G. (2013). Strategic environmental assessment opportunities and risks for Arctic offshore energy planning and development. *Marine Policy, 39*, 296- 302. https://doi.org/10.1016/j.marpol.2012.12.011

Noble, B. F. (2015). *Introduction to Environmental Impact Assessment: A guide to principles and practice*. Canada: Oxford University Press.

Nunavut Impact Review Board. (2018). Strategic Environmental Assessment for Baffin Bay and Davis Strait. Retrieved from https://www.nirb.ca/publications/strategic%20environmental%20assessment/180601-17SN034-Environmental%20Setting%20and%20Review%20of%20Potential%20Effects%20Report-IEDE.pdf

Office of the Auditor General of Canada. (2012). Report of the Commissioner of Environment and Sustainable Development. Chapter 1: Atlantic offshore oil and gas activities. Retrieved from http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201212_01_e_37710.html

Ozoike-Dennis, P., Spaling, H., Sinclair, J. & Walker, H. (2019). SEA, Urban Plans and Solid Waste Management in Kenya: Participation and Learning for Sustainable Cities. *Journal of Environmental Assessment Policy and Management*. doi: 10.1142/S1464333219500182

Partidário, M. (2000). Elements of an SEA framework - Improving the added-value of SEA. Environmental Impact Assessment Review, 20, 647-663. doi: 10.1016/S0195-9255(00)00069-X

Rega, C. & Baldizzone, G. (2015). Public participation in Strategic Environmental Assessment: A practitioners' perspective. *Environmental Impact Assessment Review, 50,* 105-115. https://doi.org/10.1016/j.eiar.2014.09.007

Shrimpton, M., de Jonge, B., McIsaac, L. & Cadigan, S. (2003). *Atlantic Canada Offshore Petroleum Exploration Rights Permitting Study*. St. John's: Atlantic Canada Petroleum Institute.

Sipekne'katik. (2015, Dec 31). Re: Notification of comment period for Draft Report of a Strategic Environmental Assessment of the Sydney Basin and Orpheus Graben Areas Offshore Cape Breton [Letter]. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/sipeknekatik_written_comments_for_sea_sydney_basin_and_orpheus.pdf

Species At Risk Act. (2002). Retrieved from https://laws.justice.gc.ca/eng/acts/S-15.3/

Stantec. (2012a). Strategic Environmental Assessment for Offshore Petroleum Activities: Eastern Scotian Slope (Phase 1B). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/15581_75345.7.2_sea_-_eastern_scotian_shelf_and_slope_middle_and_sable_island_banks_2012_final_reports_phase1b_10032012.pdf

Stantec. (2012b). Strategic Environmental Assessment for Offshore Petroleum Activities: Middle and Sable Island Banks (Phase 1A). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/15581_75354.7.1_sea_-_eastern_scotian_shelf_and_slope_middle_and_sable_island_banks_2012_final_reportsphase1a_10032012.pdf

Stantec. (2013a). Strategic Environmental Assessment for Offshore Petroleum Activities: Misaine and Banquereau Banks (Phase 2A). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/seareport_phase2a_final_0.pdf

Stantec. (2013b). Strategic Environmental Assessment for Offshore Petroleum Activities: Eastern Scotian Slope (Eastern portion) and Laurentian Fan (Western portion) (Phase 2B). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/seareport_phase2b_final_1_0.pdf

Stantec. (2014a). Strategic Environmental Assessment for Offshore Petroleum Activities: Western Scotian Slope (Phase 3B). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/seareport_phase3b_apr_22_2014.pdf

Stantec. (2014b). Strategic Environmental Assessment for Offshore Petroleum Activities: Western Scotian Slope (Phase 3A). Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/seareport_phase3b_apr_22_2014.pdf

Stantec. (2019). Middle Scotian Shelf and Slope Strategic Environmental Assessment. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/final_middle_scotian_shelf_sea_.pdf

Tetlow, M. F. & Hanusch, M. (2012). Strategic environmental assessment: the state of the art. Impact Assessment and Project Appraisal, 30(1), 15- 24. https://doi.org/10.1080/14615517.2012.666400

Therivel, R. & Partidário, M. R. (1996). *The Practice of Strategic Environmental Assessment*. London: Routledge.

Transport Canada. (2020). Report to Canadians: Investing in our coasts through the Oceans Protection Plan. Retrieved from https://www.tc.gc.ca/en/initiatives/oceans-protection-plan/report-canadians-investing-coasts-oceans-protection-plan.html

Twomey, S. & O'Mahony, C. (2019). "Stakeholder Processes in Marine Spatial Planning: Ambitions and Realities from the European Atlantic Experience," In Zaucha J. & Gee, K. (Eds.), *Maritime Spatial Planning* (pp. 295- 325). Cham: Palgrave Macmillan.

Udofia, A., Noble, B. & Poelzer, G. (2016). Aboriginal Participation in Canadian Environmental Assessment: Gap Analysis and Directions for Scholarly Research. *Journal of Environmental Assessment Policy and Management, 18*(3). https://doi.org/10.1142/S1464333216500204

Vespa, M., Sinclair, J., Boerchers, M. & Gibson, R. (2017). New Process, Same Doubts: Participants' Perceptions of Strategic Environmental Assessment in Western Newfoundland. *Journal of Environmental Assessment Policy and Management, 19*(1). doi: 10.1142/S1464333217500041

Wikipedia contributors. (2020, July 3). Scotian Shelf. In *Wikipedia, The Free Encyclopedia*. Retrieved from https://en.wikipedia.org/w/index.php?title=Scotian_Shelf&oldid=965838801

World Wildlife Fund of Canada. (2019, Apr 18). Re: WWF-Canada's feedback on CNSOPB's Middle Scotian Shelf and Slope Strategic Environmental Assessment [Letter]. Retrieved from https://www.cnsopb.ns.ca/sites/default/files/resource/wwf-canada_comments_on_cnsopb_sea_20190418.pdf

Yates, K. L. (2018). "Meaningful stakeholder participation in marine spatial planning with offshore energy," In Katherine L. Yates & Corey Bradshaw (Eds.), *Offshore Energy and Marine Spatial Planning* (pp. 169-188). Oxon: Routledge.

Yates, K. L., Polsenberg, J., Kafas, A. & Bradshaw, C. J. (2018). "Marine spatial planning in the age of offshore energy," In Katherine L. Yates & Corey Bradshaw (Eds.), *Offshore Energy and Marine Spatial Planning*. Oxon: Routledge.

Figure 1. Eight SEAs between 2012-2020 (C-NSOPB, "Public registry: SEAs," n. d.).

The Scotian shelf bioregion spans 120,000 square kilometres with a rugged seafloor, ranging from shallow depths at 90 metres to steep troughs that plunge 2000 metres off the continental shelf (Wikipedia contributors, 2020).

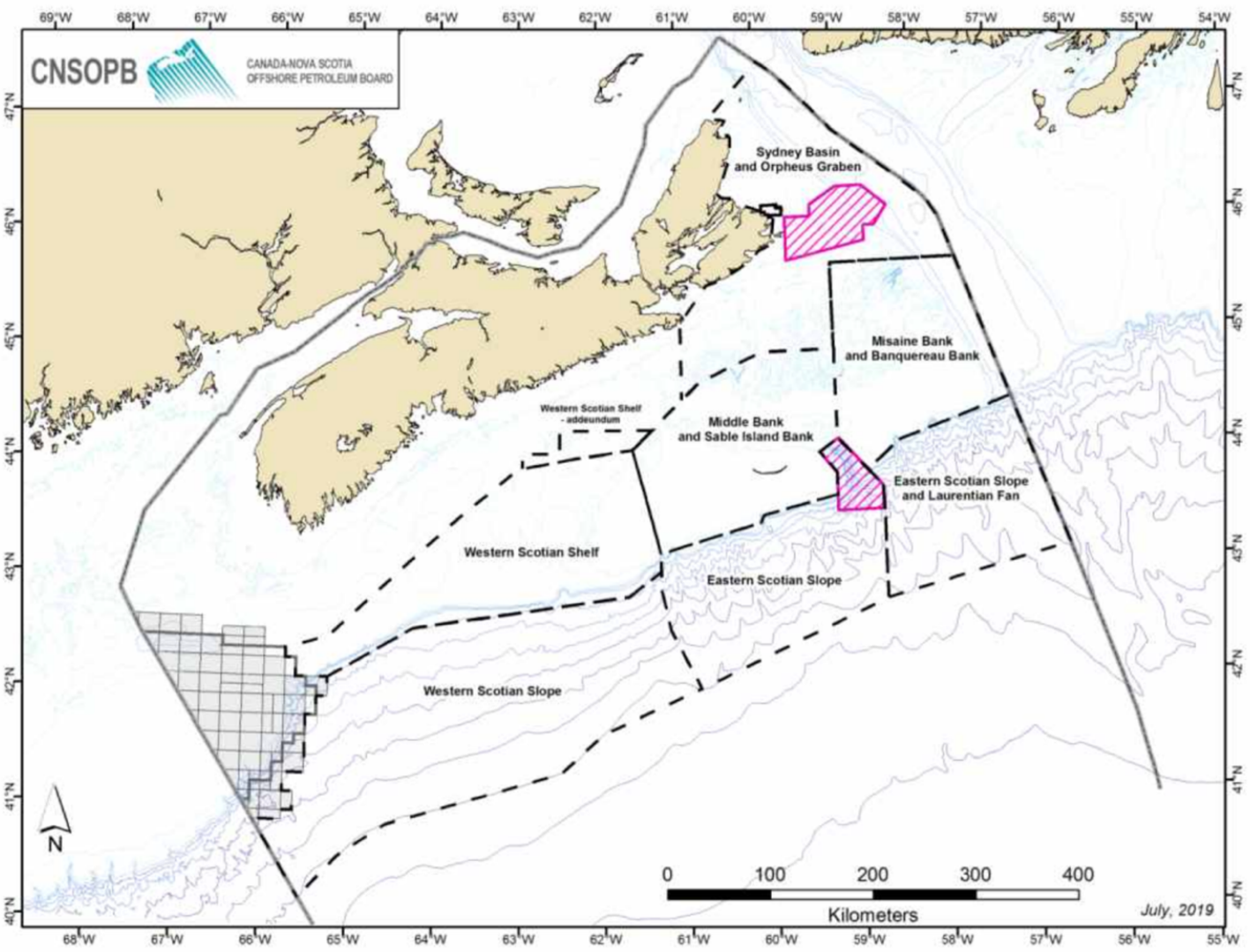

Table 1. Strategic Environmental Assessments between 2012- 2020 and participants by actor group

	2012	2013	2014	2016	2019
	Eastern Scotian Shelf	Eastern Scotian Slope (Eastern Portion) and Laurentian Fan (Western Portion)	Western Scotian Shelf and Slope - Area 3A	Sydney Basin and Orpheus Graben Areas	Middle Scotian Shelf and Slope
	Eastern Scotian Shelf and Slope - Middle and Sable Island Bank	Eastern Scotian Shelf Misaine and Banquereau Banks (updated from 2005)	Western Scotian Shelf and Slope - Area 3B		
Federal Departments					
Fisheries and Oceans Canada	x	x	x	x	x
Environment Canada	x	x		x	
Department of National Defense			x		
Commercial Fisheries					
Clearwater Seafoods		x			
W. T. Grover Fisheries Ltd	x				
Guysborough County Inshore Fishermen's Association	x				
Atlantic Herring Co-op Ltd	x				
Full Bay Scallop Association	x				
Snow Crab Association				x	
The Maritime Fishermen's Union				x	
LFA27 Management Board				x	
Environmental Non-Governmental Organizations					
World Wildlife Fund					x
Indigenous communities					
Maritime Aboriginal Peoples Council	x	x	x		
Sipeknekatik				x	
Kwilmu'kw Maw-klusuaqn Negotiation Office					x
Energy Industry					
The Maritimes Energy Association			x	x	
Public					
Catherine Kingston					x
Bill Nickerson					x
Elvie Freeman					x

Appendix 1. Research Participants

Canada-Nova Scotia Offshore Petroleum Board
Nova Scotia Department of Energy and Mines
Offshore Energy Research Association of Nova Scotia
Fisheries and Oceans Canada
Environment and Climate Change Canada
Natural Resources Canada
Parks Canada
Impact Assessment Agency of Canada
Maritime Aboriginal Peoples Council
World Wildlife Fund Canada
Sierra Club Foundation
Canadian Parks and Wilderness Society
East Coast Environmental Law Association
Ecology Action Centre
Council of Canadians
Marine Affairs Program, Dalhousie University
Mi'kmaq Conservation Group
Save our Seas and Shores
Campaign to Protect Offshore Nova Scotia
Clean Ocean Action Committee
Maritime Fishermen's Union, Local 6
Gulf of Nova Scotia Herring Federation